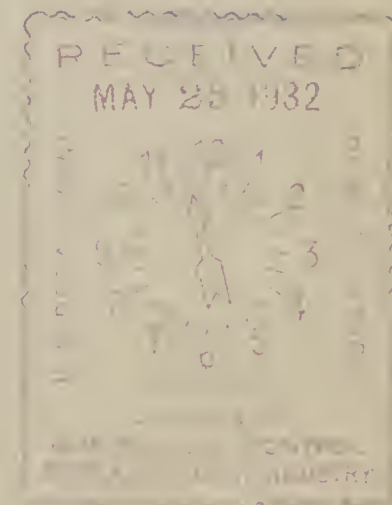


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REPORT OF
COOPERATIVE BLISTER RUST CONTROL WORK
IN THE EASTERN STATES
DURING 1931



By
E. C. Filler and K. K. Stimson

Boston, Mass.

April 30, 1932.

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FOREWORD

This report is based on a summarization and analysis of the yearly BRC-5 forms submitted by the state leaders, and on general observations made by the federal supervisor. It summarizes the control work for all years, and especially gives the main facts regarding the 1931 activities. No attempt has been made to discuss future plans in this report. Such plans, particularly for 1932, have been prepared for each cooperating state. As copies of these plans have been furnished the state and federal offices, it does not appear advisable to repeat this information here.

SUMMARY OF BLISTER RUST CONTROL ACTIVITIES IN THE NORTHEASTERN
AND LAKE STATES DURING THE PERIOD 1918 TO 1931, INCLUSIVE

Policy

During the period 1918 to 1921, inclusive, the Federal Government cooperated with the states, on a dollar for dollar basis, in experimental work to control blister rust. This work was conducted in each state under a cooperative agreement between the United States Department of Agriculture and the authorized state regulatory agency, the latter usually being the state forestry department. The control work was directed by the state officials under the general supervision of the Government, which paid a part of the Ribes eradication costs.

In 1922, a new program to secure the general application of control measures was initiated by the United States Department of Agriculture, the state regulatory agencies, and the state extension services. This program has been in operation since that time. The object of this cooperative work is to accomplish the control of blister rust by providing pine owners with the expert advice, leadership, and supervision needed to secure prompt and effective local eradication of Ribes in the pine growing regions. The Government is primarily responsible for furnishing each cooperating state with one or more trained agents, who function as leaders in control work. In addition, the Government conducts experiments and demonstrations to improve control practices, obtains data on spread of the rust, and gives general supervision and regional leadership. All federal cooperative expenditures are offset by state expenditures of at least equal amount. The cooperating state regulatory agencies are responsible for the following: (1) the administrative direction of the employees furnished by the Government; (2) cooperation with counties, townships, associations, and individuals in control work; (3) adequate supervision and checking of local eradication of Ribes to secure effective destruction of such bushes; and (4), enforcement of any necessary regulatory measures. The state extension services cooperate, wherever practicable, by making available such facilities of their organizations as will promote the control program.

In New England and New York, this program has been in successful operation since its adoption in 1922. However, in the Lake States, Pennsylvania, and New Jersey, the control activities were not organized on this basis until 1929. There are several reasons for the restriction of the control activities outside New England and New York. The principal ones are the few original introductions of the disease and its relatively slow establishment and spread, the scattered distribution of the white pine, the passive public interest in forestry and lack of adequate state appropriations for control work. Hence, up to 1929, cooperative activities outside New England and New York were limited to a small amount of scouting, eradication of new centers of infection, and to investigational and informational work. The natural spread of the disease during the past three years has

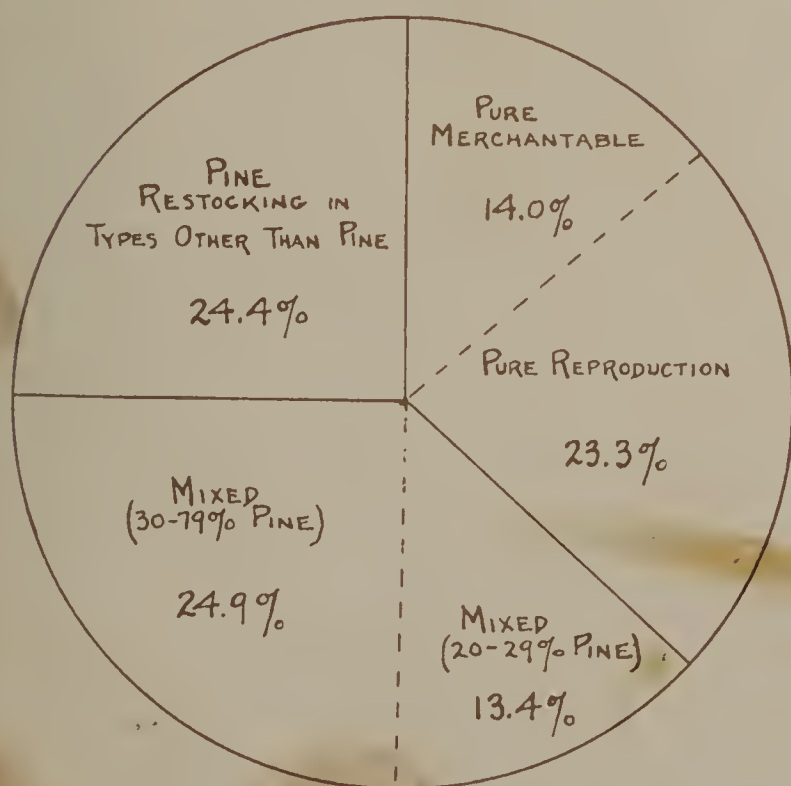
greatly increased the infested area outside the Northeastern States. As a result, definite control programs have been adopted in Pennsylvania, New Jersey, Michigan, Wisconsin, and Minnesota, and a limited amount of control work performed.

The Scope of the Problem

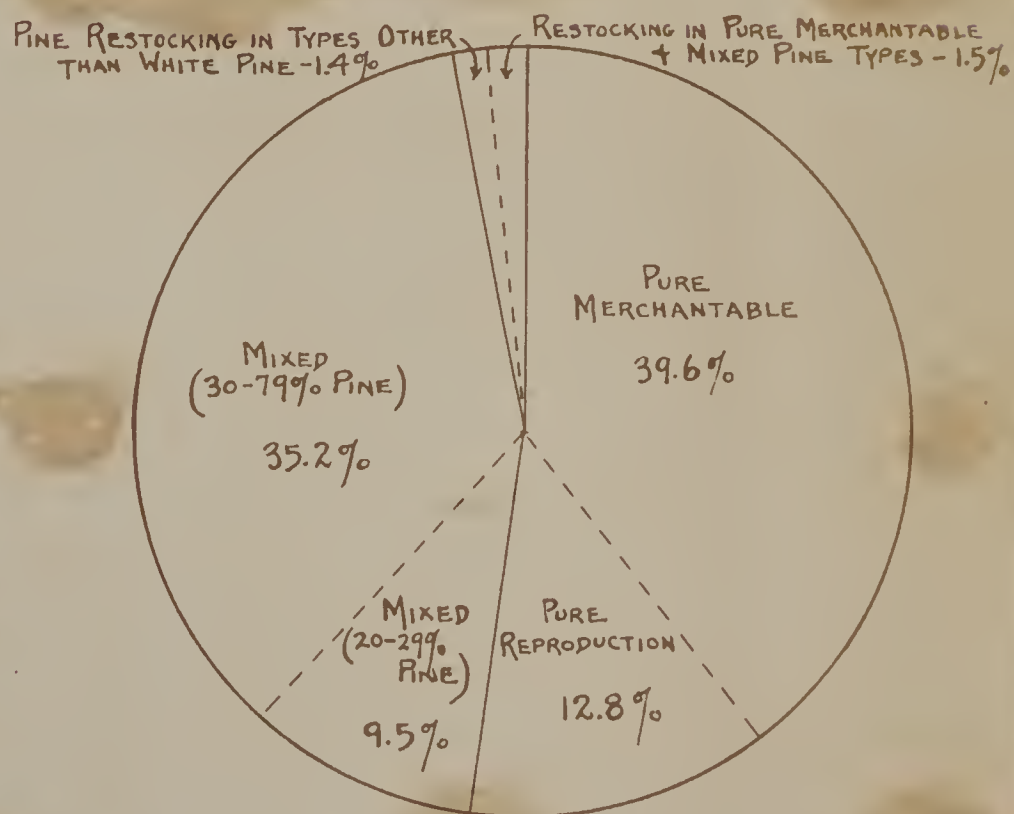
White Pine

According to a forest type survey made in 1927 by the Division of Blister Rust Control, there are 7,283,899 acres of white pine growth in New England and New York valued at \$330,180,246. This acreage is classified as follows: Pure pine (80 per cent or over), 2,714,182 acres; mixed pine (21-79 per cent pine in mixture), 2,791,833 acres; and pine restocking in types other than pine, 1,777,884 acres. Of the total pine acreage, 75.1 per cent is located in the three States of Maine, New Hampshire, and New York. A similar survey in the States of Minnesota, Wisconsin, Michigan, and Pennsylvania revealed a total of 1,946,198 acres of white pine growth. However, only 630,562 acres of this amount contain pure pine or mixed pine above 30 per cent. In addition, throughout the Northeastern and Lake States, there are vast areas of mixed growth with pine stocking of less than 20 per cent. Also, millions of white pines are being planted each year. In New Jersey, the white pine is confined to ornamental and forest plantings and to small scattered areas of natural growth in the northern part of the state.

ACREAGE AND COMMERCIAL VALUE OF WHITE PINE IN NEW ENGLAND AND NEW YORK.








ACREAGE - 7,283,899

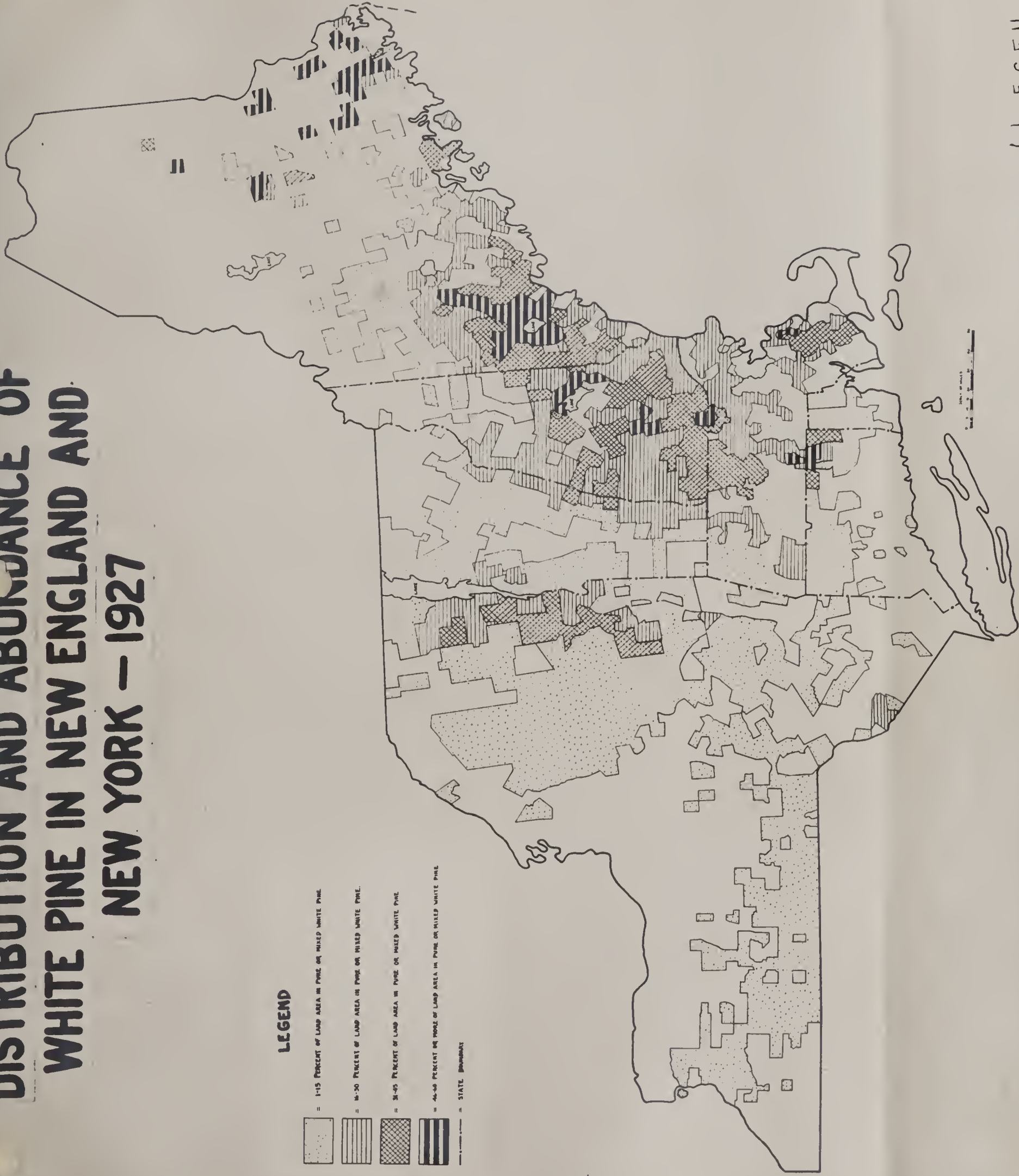


COMMERCIAL VALUE - \$330,180,246.

DISTRIBUTION AND ABUNDANCE OF WHITE PINE IN NEW ENGLAND AND NEW YORK — 1927

LEGEND

-  1-15 PERCENT OF LAND AREA IN PURE OR MIXED WHITE PINE
-  16-50 PERCENT OF LAND AREA IN PURE OR MIXED WHITE PINE
-  51-65 PERCENT OF LAND AREA IN PURE OR MIXED WHITE PINE
-  66-80 PERCENT OF LAND AREA IN PURE OR MIXED WHITE PINE
-  STATE BOUNDARY



Designed by E. C. Filler
Drawn by William Clave — 1930.

Ribes

Wild Ribes occur more or less generally distributed throughout the white pine region of the Eastern States, but vary locally as to site, species, size, and abundance. Nine indigenous species have been encountered in control work, four being gooseberries and five currants, exclusive of Ribes vulgare which is considered an escaped cultivated red currant. In certain sites, the Ribes number 100 or more per acre, and in others are entirely absent. The aggregate, however, represents many millions of such bushes, as evidenced by the eradication of 88,497,640 wild Ribes in New England and New York during the period 1918 to 1931, inclusive. It has been determined by Fivaz that shade is an important factor in eliminating and suppressing Ribes, that Ribes seed remain dormant and viable in the duff for years, and that disturbance of the duff by logging, fire, animals, or mechanical means favors the germination of such dormant seeds. Therefore, Ribes are found most abundant in open situations, such as recently cut-over or burned areas, pastures, swamps, fence rows, etc. The cultivated Ribes problem is indicated by the 656,777 cultivated bushes that have been destroyed in applying control measures since 1918. The amount and distribution of wild Ribes per acre, based on town units, is indicated on the following map.

DISTRIBUTION AND ABUNDANCE OF WILD RIBES IN NEW ENGLAND AND NEW YORK

BASIS
NUMBER OF WILD RIBES PER ACRE OF LAND AREA* IN EACH TOWN

LEGEND

LESS THAN ONE WILD RIBES PER ACRE

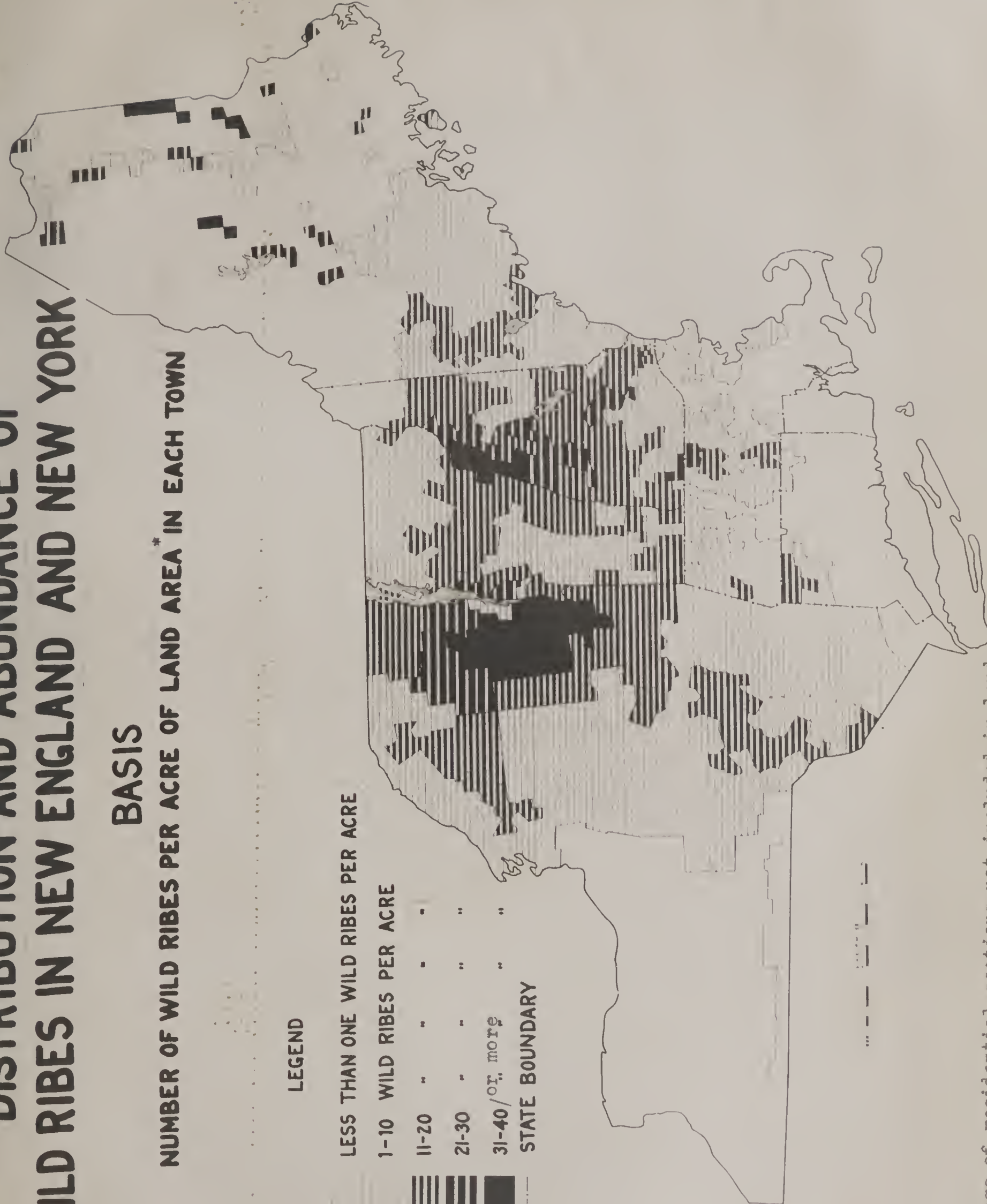
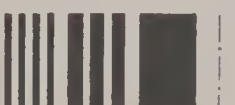
1-10 WILD RIBES PER ACRE

11-20 " " "

21-30 " " "

31-40 / or more " "

STATE BOUNDARY



*Acreage of residential sections not included in land area.

Infection

Blister rust infection is general throughout the commercial white pine range of the Northeastern and Lake States. Over extensive areas, from 1 to 20 per cent or more of the pines are infected; and in many local pine tracts, from 50 to 100 per cent of the trees are dead or dying. The amount of disease varies considerably in different localities, and is directly affected by such factors as the number of original infection centers caused by the planting of imported diseased pine, the distribution and amount of native pine, association of pine and Ribes, abundance of Ribes, climatic conditions, and the application of control measures. In Essex and Warren Counties, New York, and in the upper Connecticut River valley region, where Ribes are generally abundant, pine infection is also heaviest; 11 to 20 per cent or more of the trees being diseased. In southern New England and in most of southern New York, less than one per cent of the pines are infected, except in a few limited areas. The distribution and amount of disease based on township units in New England and New York is shown by the following map. A direct correlation between pine infection and abundance of Ribes is apparent when this map is compared with the Ribes map on page 5.

During 1920, strip line infection surveys were made in New Hampshire, Maine, Vermont, New York, and Massachusetts. The pines on rod wide strips, totaling 165.9 miles in length, were examined. A total of 42,274 pines were inspected and 10.2 per cent were found diseased. In addition, 256 plots, totaling 71.3 acres, were laid out adjacent to the strips; 27.7 per cent of the 23,461 pines on these plots were infected. These data may be regarded as conservative of conditions in unprotected areas where Ribes are generally distributed; as since 1920, the results of the heavy wave of infection in 1919 have become increasingly conspicuous. Another heavy infection wave occurred in 1925.

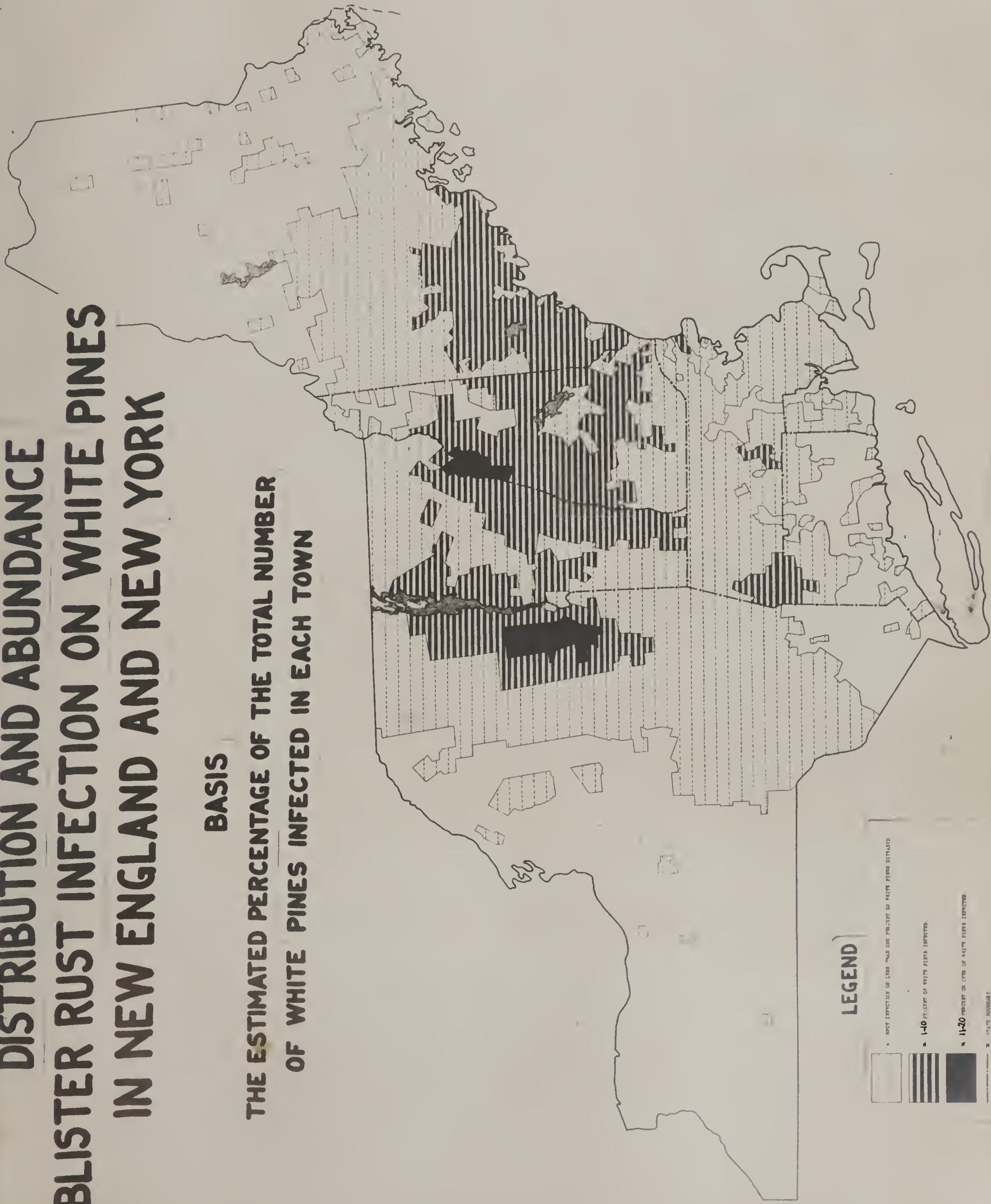
Additional infection information was secured during 1925-1927 by the blister rust agents. Studies made by examining the first ten infected pines found on each of 415 representative pine areas in New England and New York showed cankers originated on the 4,150 infected pines as follows: total cankers 10,428, of which 22 per cent originated up to 1917, 43 per cent during 1918-1921, and 35 per cent since 1921. The percentage of infection since 1921 is probably too low to be representative of true conditions. Many of the 1925 cankers were probably not evident at the time the study was made; also, in selecting infected trees, the agents naturally picked out specimens readily visible, rather than trees containing only incipient cankers.

The disease has been established in Pennsylvania and the Lake States about as long as in New England and New York, but due chiefly to fewer importations of infected stock and localization of native pine areas, it has not developed and spread as rapidly as in the latter section. However, during recent years, the amount and extent of the disease in Pennsylvania and the Lake States has increased at an alarming rate and the need for general application of control measures has become most urgent.

DISTRIBUTION AND ABUNDANCE BLISTER RUST INFECTION ON WHITE PINES IN NEW ENGLAND AND NEW YORK

BASIS

THE ESTIMATED PERCENTAGE OF THE TOTAL NUMBER
OF WHITE PINES INFECTED IN EACH TOWN





Results Accomplished in Blister Rust Control in Eastern States

New England and New York

Regular Control Work

During the experimental control work in New England and New York, from 1918 to 1921, inclusive, 1,036,903 acres were cleared of 14,399,785 wild Ribes and 91,718 cultivated bushes at an average cost of 37.6 cents per acre. The cost per acre was reduced from 72 cents in 1918 to 18 cents during 1921. In the application of control measures during the present program, from 1922 to 1931, inclusive, an additional area of 8,022,834 acres (including nursery sanitation project) was eradicated of 74,097,855 wild Ribes and 490,877 cultivated bushes at a per acre cost of 18.7 cents. This acreage, however, includes 703,135 acres reworked since 1923. Therefore, up to 1931, inclusive, cooperative control work had actually been conducted on a total of 8,356,602 acres (pine areas and protection zones) on which 88,497,640 wild Ribes had been destroyed. This does not include a few thousand acres worked in connection with strictly federal projects. In conjunction with the regular control work, measures are also being taken to protect white pine nursery stock and plantings and to eliminate Ribes nigrum from the white pine region.

Cooperation

The public participation in control work during 1918 to 1931 is indicated by 35,239 individual cooperators expending \$441,793.67, and by 1,539 town appropriations totaling \$434,895.17. These individuals actually furnished labor or money to eradicate the Ribes on their properties. Also, thousands of additional owners permitted the destruction of their cultivated bushes without compensation. The excellent public support in this respect is evidenced by the fact that although 490,877 cultivated Ribes were destroyed in the regular control work and 74,182 in connection with special black currant and nursery sanitation projects during the period 1922 to 1931, inclusive, yet it was only necessary to compensate 1,188 owners \$10,378.54 for 28,160 bushes. The average compensation per bush has, therefore, amounted to 36.8 cents. Based on the total number of cultivated Ribes eradicated, compensation was paid for only 5 per cent of the total bushes and averaged 1.8 cents per bush. In addition to the above direct cooperation, thousands of individuals gave their general support and personal aid to the control program.

These splendid accomplishments in individual and town cooperation are the result of successful informational activities. These are necessary to create general and favorable attention, interest, and desire; and to secure general, prompt, and effective cooperation in applying control measures by individuals and towns. The amount of this work conducted by the blister rust agents in New England and New York during 1922 to 1931, inclusive, is as follows:

Informational Activities

General

Exhibits placed.....	4,728	Publications distributed.....	575,658
Items published.....	9,268	Posters and signs placed.....	64,881
Meetings addressed.....	4,070	Field demonstration meetings.	3,040
Attendance.....	283,211	Attendance.....	28,369

In addition, thousands of mimeographed articles have been distributed, many roadside demonstrations placed, infected trees tagged, radio talks given, etc.

Personal

Initial interviews.....	114,378	Individuals personally in-	
Follow-up calls.....	63,336	structed in field.....	68,771

Control Work by Individuals and Towns

Individual cooperation in wild Ribes eradication has been solicited in all the Northeastern States. However, such efforts have been restricted in New Hampshire where the work is done chiefly in cooperation with towns; and in Rhode Island where, except during 1920, state funds have been used to pay the entire cost of the limited amount of necessary control work. In New England and New York during the period 1922 to 1931, inclusive, the cooperative Ribes eradication projects with 34,878 individuals resulted in 2,081,607 acres being cleared of 37,543,597 wild Ribes and 292,804 cultivated bushes at a total cost of \$690,856.33, or a per acre cost of 33.2 cents. This cooperative work represents 25.9 per cent of the total area eradicated of Ribes in New England and New York during this period. For detailed information by years and states see tables on pages 141 and 142.

Town cooperation has been obtained chiefly in New Hampshire, Maine, and Connecticut. However, some town funds have also been secured in Vermont and Massachusetts. In New Hampshire, 1,050 town appropriations have made available \$342,025.00 for control work. This amount represents 78.6 per cent of the total town money secured in New England since 1918. Many of the New Hampshire towns have consistently made yearly appropriations until their entire pine areas were cleared of Ribes. In fact, initial control work has been completed in 100 New Hampshire towns. The town money in New Hampshire is turned over to the state and expended with an additional 20 per cent state funds to clear definite town blocks of Ribes, irrespective of property lines. A few towns in Maine and Connecticut have also been worked on the basis of town blocks. The total work on this basis since 1922 resulted in 2,325,881 acres being cleared of 27,897,630 wild Ribes and 89,910 cultivated bushes at a total cost of \$451,967.64, or 19.4 cents

per acre; 95.0% of this acreage was in New Hampshire, 3.7% in Connecticut, and 1.3% in Maine.

In Maine, town cooperation has been obtained since 1921; 452 town appropriations making available \$78,574.52 for control work. Up to 1931, this town money, except for a few thousand dollars, was used to employ town foremen who aided the individual owners in eradicating Ribes concentrations on their properties. A new state policy was inaugurated in Maine in 1931 whereby the town funds were used to employ crews, as in New Hampshire, and the control areas were systematically worked irrespective of property lines, the state paying one-third of the costs of eradicating the Ribes. The eleven town appropriations, totaling \$805.90, in Vermont have been used to pay the excess labor cost of foremen working with individual owners. Town money was secured in Massachusetts only during 1920 and 1921, when four appropriations, totaling \$1,700, were made for control work in Berkshire County.

During 1926 to 1931, inclusive, \$26,614.87, derived from 116 town appropriations in New Hampshire, Maine, Vermont, and Connecticut, were expended on reprotection projects in these states.

State Work in Eradicating Ribes

Ribes eradication work performed by the states and paid for entirely from public funds may be divided into two classes according to land ownership; namely, public lands and individuals' lands. Control work on state forests has been conducted in all states except Maine, which up until 1931 did not own such land. Since 1921, a total of 188,206 acres of state forests (or 2.3 per cent of the entire acreage cleared of Ribes in New England and New York) have been eradicated of 6,579,669 wild Ribes and 17,038 cultivated bushes at a total cost of \$201,827.84, or \$1.07 per acre. Of this total amount, New York has expended \$167,693.77 on 101,700 acres at a per acre cost of \$1.65 for eradicating 40.2 Ribes per acre. Also, most of the control work performed in New York prior to 1922 was on state lands. In the other states, very little state land work was done before 1922. Massachusetts ranks second in amount of control work on state forests, since 1921 having eradicated 2,156,211 wild Ribes and 8,747 cultivated bushes from 70,726 acres at a cost of \$28,230.74. Detailed summaries of state land projects are given on page 144 of this report. Initial control work has been completed on all pine lands in the state forests of New England. New York has also completed about 90 per cent of the initial Ribes eradication work needed in its state forests.

State control work on individually owned lands has been restricted to five states; Maine, Massachusetts, Rhode Island, Connecticut, and New York. Since 1921, these states have cleared 3,373,648 acres of 1,881,383 wild Ribes and 89,015 cultivated bushes at a total cost of \$144,058.29. This acreage represents 42.1 per cent of the total area worked in New

England and New York since that time. This work also represents an expenditure of 4.3 cents per acre for eradicating an average of 0.6 a bush per acre. In other words, such control work has been conducted on lands where the Ribes were so few and localized it was more efficient to do the control work by state scouts than to attempt to secure the cooperation of the individual owners. Most of this kind of work has been performed in Maine and Massachusetts. The percentage of the total acreage cleared of Ribes since 1921 in each state, that was worked on this basis, is as follows: Maine - 87.2%; Massachusetts - 45.4%; Rhode Island - 99.3%; Connecticut - 34.2%; and New York - 10.2%. In addition to the above, the State of Maine was compelled to enforce its state law in applying control measures during 1927 to 1929 on 140 acres of individually owned lands when the owners refused to cooperate. Detailed summaries of all state control work on individually owned lands are given on page 143.

Protection of White Pine Plantations

Adequate measures are being taken to protect the white pine plantings, in conjunction with the protection of natural pine, in all the agent districts of New England and New York. In three states (New York, Vermont and New Hampshire) the agents are supplied with lists showing the annual distribution of white pine stock from their respective state nurseries. This procedure would be helpful in Maine and Massachusetts, even though control work is conducted on the basis of township units. Plantings may be made in these two states outside the control areas in the townships without the knowledge of the agents. As all permits for pine planting stock in Rhode Island are reviewed by the state leader, he has a complete record of plantings. No state nursery is maintained in Rhode Island. In Connecticut and New York, there is an abundance of planted pine outside the agents' districts. Some white pines have also been planted outside the agent districts in Vermont, but few of these plantations have been inspected. In Connecticut, where over 10,000 acres have been set out to white pine, these outside plantings are more or less naturally protected, due to the scarcity of wild Ribes. However, no systematic inspection of these plantations has been made. Such work is needed, especially to eliminate Ribes nigrum. In New York, where 73,612,678 white pines have been distributed from the state nurseries up to 1931 inclusive, systematic inspection of plantations, outside the agents' districts, was begun during 1928 in five counties and has been continued in other sections since that time. The areas planted to white pine under the new Hewitt reforestation law have been given adequate protection.

New York requires all prospective planters to sign an agreement, guaranteeing to eradicate all Ribes from the pine planting sites. Maine sends the planters special cards emphasizing the need for control, and attaches warning cards to each pine shipment sent from the state nursery. Also, in New Hampshire, Rhode Island, and Vermont, a special letter, regarding the importance of control, is sent to each planter. It is essential that each state take definite action to make sure white pines are planted only on protected sites.

Results and Cost of Ribes Eradication Project in New England and New York
1918-1931, Inclusive

(Totals)

State	Acreage Cleared of Ribes (Initial and reprotection)	Estimated Acreage White Pine Protected	Estimated Per Cent Protected		Ribes Eradicated (Wild and Cult.)	Total Cost of Ribes Eradication	Total Cost of All Control Activities
			Control Area	Pine Area			
Maine	2,695,862	1,986,124	90.4	76.1	18,651,395	\$ 214,541.87	\$ 453,789.64
N. H.	2,928,221	1,258,387	81.5	81.5	35,116,662	561,435.05	997,611.64
Vt.	206,144	103,072	60.0	18.2	2,211,127	89,253.84	225,146.99
Mass.	1,937,672	948,020	98.9	98.9	13,424,792	284,466.03	623,637.72
R. I.	283,592	73,123	99.9	99.9	206,744	30,573.29	78,551.63
Conn.	288,191	216,154	100.0	100.0	1,891,497	71,239.20	203,359.63
N. Y.	720,055	576,044	72.0	43.8	17,578,018	637,475.99	1,375,334.46
Totals	9,059,737	5,160,924	86.8	70.9	89,080,235	\$1,888,985.27	\$3,957,431.71

In each state, the pine acreage protected was arbitrarily assumed to be the same proportion of the total pine area as the proportion of the control area cleared of Ribes; except in Vermont and New York, where the acreage of pine protected was estimated to be 50% and 80%, respectively, of the total control area. The percentage of the control area cleared of Ribes in each state is based on estimates made by the agents of the acreage still requiring initial protection in the various towns of their districts. The 411,871 acres of mixed pine, outside the agent districts in Maine, were deducted in ascertaining the acreage of pine protected and the percentage of the pine area protected in that state.

The marked difference between the percentage of the control area protected and pine area protected in Vermont may be attributed to the fact that there are only 103,376 acres of pure pine in that state. It is questionable how much of the remaining acreage, composed of mixed types or pine restocking in types other than pine, will require protection. The pine lots in Vermont are small and isolated, requiring larger proportionate protection zones.

The cost of the Ribes eradication project includes all expenditures by state, towns, individuals, and federal government for wages of laborers, linemen, scouts, and foremen employed in pulling Ribes. It also includes the following expenses in connection with the operation of state camps for control work in New York and Connecticut: establishment and maintenance, subsistence for personnel and wages of camp supervisors.

Total expenditures for all control activities include cost of administration, supervision, blister rust control agent activities, eradication assistants, Ribes eradication, field investigations, nursery sanitation, black currant elimination, compensation, and miscellaneous.

(Per Acre Values)

State	Ribes Per Acre	Cost Per Acre							
		Based on Ribes Eradication Only				Based on Total Expenditures			
		1918-1931		Ave. Per Year		1918-1931		Ave Per Year	
		Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected	Total Area Worked	Pine Area Protected
Maine	6.9	.080	.108	.006	.008	.168	.228	.012	.016
N. H.	11.9	.192	.446	.014	.032	.341	.793	.024	.057
Vt.	10.7	.433	.866	.031	.062	1.09	2.18	.078	.156
Mass.	6.8	.147	.300	.011	.021	.322	.658	.023	.047
R. I.	0.7	.108	.418	.008	.030	.277	1.07	.020	.076
Conn.	6.5	.247	.330	.018	.024	.706	.941	.050	.067
N. Y.	24.3	.885	1.11	.063	.080	1.91	2.39	.136	.171
Totals	9.8	.208	.366	.015	.026	.437	.767	.031	.055

No satisfactory comparison can be made between the per acre costs in the various states, due to numerous factors which directly influence the cost of the eradication work. For instance; about 85% of the acreage worked in Maine has been covered by scouts. This has been possible because of the localized distribution of the Ribes. For this reason, the per acre costs in Maine are considerably lower than in the other states. It will be noted in Rhode Island that the cost per acre of pine protected is much greater than the per acre cost based on total area worked. A large acreage of potential pine land has been cleared of Ribes in that state. The small isolated pine areas in Vermont have necessitated larger proportionate protection zones, thus increasing the cost per acre of pine protected. In New York, the cost has been increased by the size and abundance of the Ribes, the ruggedness of the topography, and the inaccessibility of many of the control areas.

Based on Ribes eradication expenditures only, the cost per acre of pine protected, during the period 1918-1931, ranges from \$.108 in Maine to \$1.11 in New York with an average for all states of \$.366 per acre, or \$.026 per acre per year. When expenditures for all blister rust control activities are included, the above figures are increased to \$.228, \$2.39, \$.767, and \$.055, respectively. The compilation of per acre values on the basis of total costs is hardly justified, because they include expenditures for such projects as field investigations and black currant eradication, which are not directly related to the regular Ribes eradication work, particularly the latter can not be figured on a per acre basis.

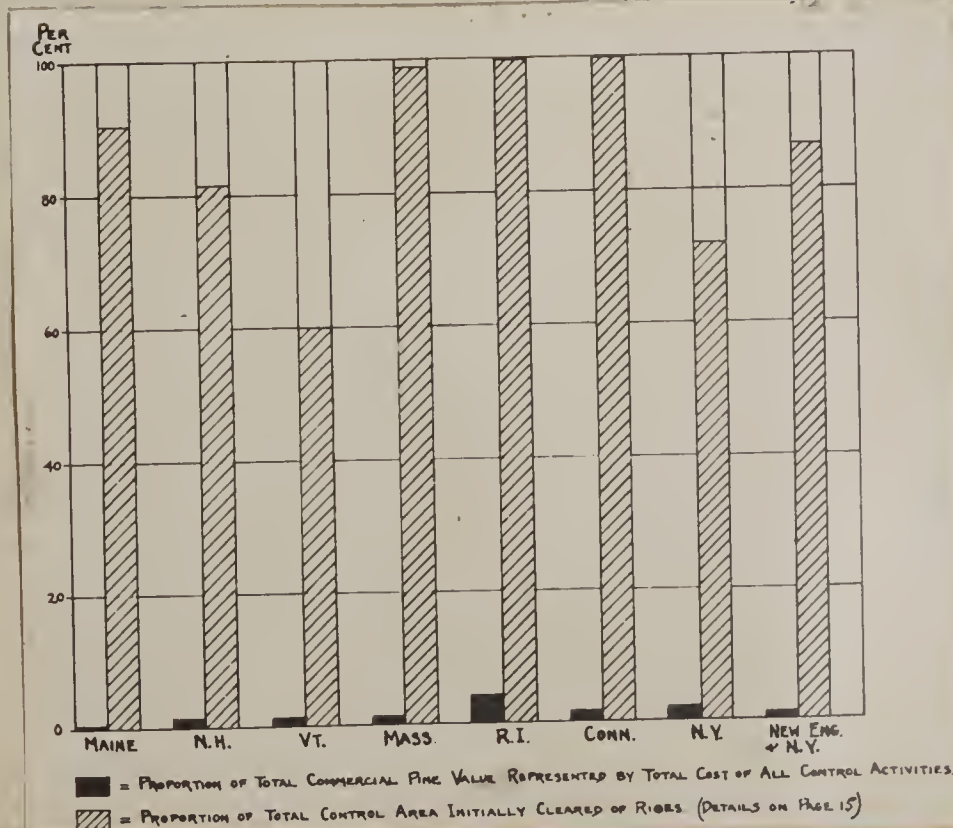
Total cost of all blister rust control activities in
New England and New York 1918-1931

State	State P.R. Appropriations	Funds from other state Appropriations	Town Expenditures	Individual Expenditures	Federal \$ for \$ Expenditures	Total
Maine	\$76,931.25	\$8,705.20	\$76,141.17	\$79,803.87	\$212,208.15	\$453,789.64
N. H.	217,309.13	-	338,332.34	46,681.14	395,289.03	997,611.64
Vt.	47,424.02	-	548.21	66,837.06	110,337.70	225,146.99
Mass.	205,052.64	46,661.97	1,700.00	77,359.25	292,863.86	623,637.72
R. I.	36,607.70	2,013.83	-	581.36	39,348.74	78,551.63
Conn.	95,769.38	1,091.82	10,554.89	7,662.29	88,281.25	203,359.63
N. Y.	766,637.38	9,335.58	-	162,725.84	436,635.66	1,375,334.46
Totals	1,445,731.50	67,808.40	427,276.61	441,650.81	1,574,964.39	3,957,431.71
% of Total	36.5	1.7	10.8	11.2	39.8	100.0

Relation of total cost of all control activities to total
commercial value of white pine in New England and New York.

State	Acreage of Pine*	Commercial Value of Pine*	Cost of All Control Activities	Per cent of total commercial pine value represented by cost of all control activities	Per Cent Total Control Area Protected
Maine	2,608,911	\$110,062,584.	\$453,789.64	0.4	90.4
N. H.	1,544,033	76,153,493.	997,611.64	1.3	81.5
Vt.	567,084	19,249,715.	225,146.99	1.2	60.0
Mass.	958,564	48,696,622.	623,637.72	1.3	98.9
R. I.	73,196	1,880,440.	78,551.63	4.2	99.9
Conn.	216,154	11,484,829.	203,359.63	1.8	100.0
N. Y.	1,315,957	62,652,563.	1,375,334.46	2.2	72.0
Totals	7,283,899	\$330,180,246.	3,957,431.71	1.2	86.8

*The basis for acreages and values of white pine are given in the individual state summaries on pages 162 to 173.



Status Of Blister Rust Control In New England and New York - December 31, 1931

<u>State</u>	<u>Total Acreage Cleared of Ribes 1918 to 1931, Inclusive, (Excluding re-protection)</u>	<u>Total Acreage Still Needing Initial Control Work (a)</u>	<u>% Total Control Area Cleared of Ribes</u>
Maine	2,688,305	286,294 (b)	90.4
N. H.	2,564,912	582,666	81.5
Vt.	179,660	119,867	60.0
Mass.	1,746,730	20,000	98.9
R. I.	272,682	250	99.9
Conn.	236,138	0	100.0
N. Y.	668,175	260,274 (c)	72.0
Totals	8,356,602	1,269,351	86.8

(a) This area is based on estimates, made by the blister rust control agents, of the remaining acreage still in need of initial Ribes eradication in the various towns of their districts. It includes both pine areas and protection zones.

(b) Outside the agents' districts in Maine and east of the Penobscot River, there are an additional 411,871 acres of mixed growth with a stocking of 20 per cent or more white pine. Some of this pine may require protection.

(c) Outside the agents' districts in New York, there are an additional 132,301 acres containing principally white pine plantations and mixed natural growth with a stocking of 20 per cent or more white pine. Only partial information is available as to how much of this acreage will need eradication of Ribes.

The status of control work in New England and New York is also depicted on the following map. It is based on the actual acreage initially cleared of Ribes in each town and estimates made, by the blister rust control agents, of the remaining acreage still in need of initial Ribes eradication in each town of their districts.

Distribution and amount of blister rust control work in New England
and New York up to 1931, inclusive.

(Map will be submitted at a later date)

Special Control Work (New England and New York)

Nursery Sanitation

White pines must be grown under absolutely sanitary conditions, as regards Ribes, in order to prevent infection from blister rust. Therefore, it is essential that the white pine stock in each nursery be protected by eradicating all species of Ribes within 1500 feet and all European black currants within one mile. New York and all the New England States, except Rhode Island, have state nurseries, and all produce white pine. Control of the disease has been established and is being maintained in all of these nurseries. In Maine, New Hampshire, Vermont, and Rhode Island there are only a few commercial nurseries growing white pine. All of these nurseries which ship pine interstate have applied protective measures. However, in the case of two of them, the Brown Nursery at Oquossoc, Maine, and the Keene Nursery at Keene, New Hampshire, complete control has not been established due to the abundance of Ribes and to the difficulty of eradicating such bushes in slash and swamp areas.

Most of the commercial pine growing nurseries in the Northeastern States are located in Connecticut, Massachusetts, and New York. Systematic nursery sanitation work has been in progress in Connecticut since 1928. In 1930, the state assumed responsibility for the maintenance of protection zones around those commercial nurseries desiring to grow white pine under disease free conditions, the nurserymen sharing a portion of the eradication costs. Sanitation zones are now being maintained around eleven commercial nurseries. Up to 1931, inclusive, a total of 6,331 wild Ribes and 3,138 cultivated bushes have been eradicated from 39,904 acres (including 31,648 acres of re-protection work) examined in connection with this special nursery sanitation project. A protection zone was also established around the new state forest tree nursery at Barkhamsted in 1931, approximately 2,673 acres being cleared of 3,087 wild Ribes.

In Massachusetts, all nurseries growing white pine for public sale were cleared of Ribes prior to 1925, and in each case a protection zone of 900 feet was eradicated of such bushes. During 1925 and 1926, action was taken to eliminate black currants from within one mile of each state nursery and the more important commercial pine growing nurseries. In 1927, the nursery sanitation work in Massachusetts was placed on a definite basis (1500 foot zones for wild Ribes and cultivated bushes other than nigrum) to agree with the federal requirements of Quarantine 63 and a policy established of maintaining Ribes-free conditions around only the more important white pine producing nurseries. It was believed that expenditures were not justified for control work around those nurseries growing only a limited number of such trees. Ribes eradication work was conducted around nine of the important commercial nurseries during 1927 and 1928. Since then, a limited amount of sanitation work has been performed each year involving 13 projects including three state nurseries. The pines in the most important nurseries are examined for blister rust infection each year by state

nursery officials. During the period 1929-1931, inclusive, only 21 infected trees have been found. No replanting of cultivated Ribes had occurred in the sanitation zones around the three commercial nurseries reprotected during 1931. Future sanitation work in Massachusetts will be limited to reinspections of the environs of those nurseries which have been initially protected.

During the past several years, sanitation measures have been applied to protect the pine areas in the New York State nurseries. The protection zones were for some time maintained at 900 feet. During 1928, this distance was increased to 1500 feet for all Ribes except nigrum which were eradicated within one mile of the pine areas. To date, this latter species has been eliminated within a mile of each of the five state nurseries and the 900 foot Ribes-free zones have also been completely extended to 1500 feet. All the sanitation work in 1929 and 1930 was confined to state nurseries. During 1930, the reprotection work around these five nurseries resulted in 9,042 acres being cleared of 53,314 wild Ribes and 53 cultivated bushes at a cost of \$3,101.82. In addition to the state nurseries, there are about 300 commercial nurseries in New York, but only a few of these grow any appreciable amount of white pine. During 1928, the first attempt was made to establish protection zones around some of these nurseries, especially in Wayne and Westchester Counties. Due to the abundance of cultivated Ribes and the fact that compensation had to be paid for such bushes destroyed, it was apparent that the sanitation work would have to be limited. Therefore, it was restricted to a general survey to determine and record Ribes conditions in the environs of the nurseries and to the eradication of Ribes nigrum in such situations. According to the revised state blister rust law, effective February 17, 1930, no compensation shall be paid by the State for any species of Ribes destroyed in connection with the establishment of Ribes-free zones around commercial nurseries, but fair compensation must be paid for such bushes by the person owning or operating the protected nursery. During 1931, re-protection work was conducted around the five state nurseries and the Jackson-Perkins nursery. In addition, the environs of two small private nurseries were initially cleared of Ribes.

Two nurseries (Vermont Forest Nursery, Essex Junction, Vermont, and the Jackson-Perkins Company, Newark, New York) have been issued pine shipping permits for the fiscal year 1932 and may ship five-leaved pines interstate in compliance with the requirements of Section (d) Regulation 2 of the federal white pine blister rust quarantine No. 63. In addition, the applications of A. N. Pierson, Cromwell, Connecticut, and H. J. Zach, Deep River, Connecticut, have been tentatively approved and permission granted to plant white pine seed. The pine shipping permit issued during 1931 to the Western Maine Forestry Company of Fryeburg, Maine, was not renewed the following fiscal year, but it is understood the owner plans to qualify for a renewal of the permit in 1932.

Black Currant Eradication (New England and New York)

All these cooperating states are taking action to eliminate the European black currants. Three states, New York, Rhode Island, and Connecticut, have definite state laws which prohibit the possession of *Ribes nigrum*. In the other states, such bushes may be eradicated under authority given by the respective general blister rust control laws. Four of the Northeastern States (Massachusetts, Vermont, Rhode Island, and New York) started systematic surveys in 1928 to locate and eradicate these bushes. Connecticut began such work in 1930. In Maine and New Hampshire, *Ribes nigrum* are eradicated in conjunction with the town control projects. In New York and Rhode Island, where special systematic black currant work was performed each year since 1928, a total of 30,700 such bushes were destroyed in 207 towns. This project has been completed in all Rhode Island townships except Providence. In Vermont, such work, in 1928 and 1929, resulted in 183 *Ribes nigrum* being pulled in 23 towns. The Connecticut project in 1930 and 1931 was completed in 14 towns where 163 black currants were eradicated. During 1930 and 1931, special black currant work was carried on in 168 Massachusetts towns, 23,906 such bushes being destroyed. All previous black currant work in Massachusetts was conducted in conjunction with regular control projects. Up to 1932, black currant eradication work had been completed in 247 Massachusetts towns and partially finished in 32 additional ones. A total of 38,315 *Ribes nigrum* were destroyed in these towns since 1927. No figures are available for the other states as regards the number of European black currants eradicated in connection with the regular control work.

Special Blister Rust Studies and Investigations (New England and New York)

Although there has been no special funds or personnel, except Fivaz, available to conduct surveys and field investigations in blister rust control, considerable work of this type has been performed at odd times by members of the organization. A brief summary of this work follows:

Surveys

A cultivated *Ribes* census was made in Massachusetts during 1917 - data compiled and a summary report prepared - used as a basis for later inspections and in eradication of *Ribes nigrum*. Detailed white pine surveys made in Vermont, Rhode Island, Connecticut, and parts of Maine and New York - field data summarized and pine areas plotted on maps - information used by agents in planning their work - detailed reports have been submitted on the completed surveys, and the information used for educational and supervisory purposes. Surveys on production, value and use of white pine and other woods completed in Vermont - production survey finished in Rhode Island - these data have been summarized and reports published - information used for educational purposes. A survey of forest resources in New Hampshire was completed by the State Forestry Department in 1924, and the

data published in bulletin form. Strip line infection surveys were made during 1920 in New Hampshire, Maine, Vermont, New York, and Massachusetts - the pines on rod wide strips, totaling 165.9 miles in length, were examined - a total of 42,274 pines were inspected and 10.2 per cent were found infected - 256 plots, totaling 71.8 acres, were laid out adjacent to the strips; 27.7% of the 23,461 pines on these plots were diseased - the data has been used for informational purposes in various published statements. Cartographical survey made in all states during 1926 and 1927 to determine, by towns, forest conditions, especially white pine, Ribes, and infection - data summarized and maps prepared at the Boston Office, as a basis for the epidemiology study. During 1928, the New Hampshire agents conducted a survey in 69 backward towns to locate and map the minimum control area, which should be cleared of Ribes to protect the pine crop. Partly as a result of this survey, over 30 per cent of these towns appropriated for control work in 1929. Similar work was conducted in other New Hampshire towns during the fall of 1931. It resulted in complete data being secured, by township units, on the remaining acreage still needing initial protection.

Investigations

Demonstration areas of blister rust control established in all states - reports submitted on various studies - data used as a basis for determining costs of Ribes eradication, and for obtaining comparative figures. Effectiveness of control studies were made in all states prior to 1927, except Vermont - reports submitted on these studies, but only Kittery Point study has been published. Blister rust damage plots laid out in all states, except Rhode Island - plots used for demonstration purposes and data summarized for informational use of agents. Detailed studies made in all states of spread and development of infection from definite sources, except in Rhode Island and Connecticut - reports submitted on each study, only Kittery Point study has been published. Cutting out of cankers experiment made in Massachusetts - part of the results published in bulletin form by Martin, Posey, and Gravatt. Sample forest type maps made during 1919 of two towns, (Dover and Kensington) in New Hampshire and one in Massachusetts (Duxbury) - detailed maps and estimates prepared - established effective method of mapping and estimating; town data used by agents for informational purposes and as a basis for control work. Ribes ecology studies made by Fivaz in New York - report published in 1931. Skunk currant study by Clave and Perry in Massachusetts - preliminary report given at 1927 annual conference showed only restricted spread of disease from such bushes. Crew method study by Riley in Connecticut - preliminary report presents no definite conclusions. Study begun by Clave in 1928 and by Swain in 1930 to determine effectiveness of sodium chlorate in killing skunk currants - preliminary reports given at annual conferences. Special study conducted by New York agents in 1928 to ascertain effectiveness of control - preliminary summary prepared by Boston Office shows pines examined for infection in 30 acre plots, 15 of the plots being in areas cleared of Ribes and 15

in comparable unworked tracts - since the time of Ribes eradication, 15 times as much pine infection has originated in the unprotected tracts as in the protected areas. Similar studies on the effectiveness of control were made, during 1928 and 1929, in Maine, New Hampshire, Vermont, and Massachusetts. The New York agents also laid out additional plots in 1929. These data have been summarized at the Boston Office and copies of the summaries sent to Washington and the respective state leaders. In 1931, a study of the effectiveness of control was begun in Connecticut. Two sample permanent plots were laid out in the town of Salisbury.

Pennsylvania, New Jersey and the Lake States

Regular Control Work

During the period of experimental control from 1918-1921, inclusive, Ribes eradication work was performed only in Minnesota and Wisconsin, where a total of 25,083 acres were cleared of 1,668,868 wild Ribes and 137 cultivated bushes at a cost of \$24,122.14, or 96.2 cents per acre. Since the beginning of the present program in 1922, an additional 82,090 acres in Pennsylvania and the Lake States have been eradicated of 4,597,545 wild Ribes and 4,648 cultivated bushes at a total cost of \$52,102.98. This acreage includes 3,762 acres which were reexamined.

The application of control measures in Michigan and Pennsylvania was not begun until 1928 and 1929 respectively. In 1929, the Michigan legislature passed a blister rust control law and made available \$20,000 for control work during each of the next two fiscal years. No control work was performed in Minnesota during the period 1923 to 1929, inclusive; but in 1930 and 1931, a small amount of such work was conducted. In Wisconsin, a limited amount of protection work has been carried on under the direction of a permanent state leader, each year since 1922, except during 1924 and 1925. A permanent state leader was appointed in Michigan during 1928; and in 1929, similar appointments were made in Minnesota, Pennsylvania, and New Jersey. In the latter state, the activities of the part-time leader have been limited chiefly to general scouting and inspection of nurseries and plantations. There has been no occasion to apply general control measures in New Jersey.

Cooperation

Due to the small amount of control work performed, cooperation has been correspondingly restricted. Town funds have been solicited and obtained only in Michigan, where a total of four town projects involved town expenditures of \$722.70 during 1928 to 1930. Individual cooperation has been requested and obtained in the three Lake States and Pennsylvania; 406 individuals expending \$7,564.23 on control projects since 1922. This includes \$957.25 worth of labor supplied by 64 individuals in Wisconsin in

conjunction with state work on individually owned lands. It also includes \$106.99 expended by two nurserymen on sanitation work in Minnesota during 1930 and \$458.20 spent by 6 nurserymen on similar work in Minnesota and Wisconsin during 1931.

Control Work by Towns and Individuals

A total of four town projects in Michigan resulted in 3,300 acres being cleared of 141,895 wild Ribes and 341 cultivated bushes at a cost of \$722.70 to the towns and \$737.58 to the state. The cooperative work with individuals in Michigan, Wisconsin, Minnesota, and Pennsylvania since 1922 made it possible to eradicate 21,477 acres of 1,102,664 wild Ribes and 2,077 cultivated bushes at a cost of \$6,041.79 to the owners, \$1,391.96 to the Government, and \$3,614.71 to the states, or a total of \$11,048.46.

State Work in Eradicating Ribes

State control work on public forests has been conducted in Pennsylvania, Michigan, Wisconsin, and Minnesota. Since 1922, a total of 33,201 acres have been eradicated of 2,272,787 wild Ribes and 1,311 cultivated bushes at a cost of \$26,055.25 to the states and \$1,971.92 to the Government. This acreage includes control work on the Menomonee Indian Reservation near Keshina, Wisconsin, and any control work in the environs of public nurseries in Pennsylvania, Michigan, and Minnesota prior to 1930. State control work on individually owned lands in Pennsylvania, Michigan, and Wisconsin has resulted in 21,035 acres being cleared of 877,174 wild Ribes and 512 cultivated bushes at a cost of \$7,415.00 to the states, and \$546.87 to the Government. In addition, 64 owners cooperated in this work by furnishing labor worth \$957.25.

Status of Blister Rust Control in Pennsylvania and Lake States
December 31, 1931

State	Year Control Work Performed	Total Acreage Cleared of Ribes 1918 to 1931, incl. (<u>Excluding repro-</u> <u>tection</u>)	Acreage of White Pine Growth*			
			Pure Pine (80% or more pine)	Mixed Pine (21-79% pine)	Pine Re- stocking in Types Other than Pine	Total
Penn.	1929 to 1931	40,759	91,897	126,101	157,630	375,628
Mich.	1928 to 1931	22,800	28,321	685,789	125,149	839,259
Wis.	1918 to 1931	32,887	11,127	109,756	negligible	120,883
Minn.	1918 to 1922 1930 to 1931	6,647	173,092	266,812	170,524	610,428
Totals	-	103,093	304,437	1,188,458	453,303	1,946,198

*The acreage of white pine growth is based on a rough preliminary survey made in these states by the Division of Blister Rust Control during 1927 and 1928. In addition to the acreage listed, there is a vast area of mixed growth with pine stocking of less than 20 per cent.

Special Control Work (Pennsylvania, New Jersey, and Lake States)

Nursery Sanitation

Nursery sanitation in Pennsylvania has been restricted to three state nurseries located at Clearfield, Greenwood, and Mont Alto. Ribes eradication work was first conducted around the Clearfield nursery in 1924. During 1926, a reexamination was made within a 900 foot protection zone. The area was again reworked in 1928, including all white pine plantations in the vicinity of the nursery and for a distance of 900 feet beyond the plantings. In 1927, initial control work was performed at the Greenwood and Mont Alto nurseries. During 1930, all three state nurseries were reeradicated of Ribes and protected by 1500 foot sanitation zones. This 1930 work resulted in 886 acres being cleared of 7,248 wild Ribes at a cost of \$507.63. Reprotection work was also performed around the three state nurseries during 1931; a total of 10,512 wild Ribes being remove from 755 acres at a cost of \$490.66.

The amount of white pine grown in the commercial nurseries of Pennsylvania is very limited and used entirely for ornamental purposes. Practically all of these commercial nurseries are located in open situations, where wild Ribes are absent or very scarce.

In New Jersey, there were 112 commercial nurseries which contained host plants of blister rust February 1, 1931. Some ornamental white pines were being grown in 97 of these nurseries and 22 were raising both host plants. At the time of the survey, there existed in these commercial nurseries 120,577 ornamental white pines and 13,769 cultivated Ribes. In addition, the state nursery contained 423,000 white pines. Sanitation work around this nursery was begun in 1931 when a total of 27 cultivated Ribes, including 7 infected black currants, were removed from within a 1500 foot zone by state employees.

During the past few years, the officials of the Michigan Department of Agriculture have made annual inspections of pine and Ribes in many of the local nurseries. This work resulted in the destruction of a large number of Ribes nigrum by the nurserymen. No detailed records of this work are available. The blister rust law, passed in 1929, provided for the establishment of control areas. Before the passage of this law, the Commissioner of Agriculture had set aside by special promulgation, the three principal public nurseries as blister rust control areas. Due to lack of funds, no sanitation work was conducted until 1929, when these three nurseries and environs were eradicated of Ribes. Cultivated black currants were also destroyed within a mile radius of each of these nurseries. In 1930, the protection zone around one of these nurseries (Dunbar Experiment Station) was extended and 100 acres cleared of Ribes. In addition, 60 acres were reworked. This initial and reprotection work during 1930 resulted in the destruction of 45,236 wild Ribes and 4 cultivated bushes at a cost of \$779.58. During 1931, the environs of the Michigan State Nursery and one private nursery were ex-

amined at a total cost of \$16.66. No Ribes were found on the 40 acres covered.

In 1925, the State of Wisconsin maintained one small nursery. However, since that time, the facilities for raising planting stock have been greatly increased. The pine and Ribes in the commercial nurseries have been inspected annually, but no infection has been found. No information is available as to protection measures prior to 1931 when initial control work was conducted around three nurseries (U. S. Forest Service, State, and Nekoosa Edwards Paper Company). As a result of this sanitation work, a total of 6,316 wild Ribes were destroyed on 891 acres at a total cost of \$99.15.

The planting stock in the state and commercial nurseries of Minnesota is yearly inspected by state officials. No information is available regarding these inspections or sanitation measures prior to 1930. An examination of the environs of two commercial nurseries in 1930 resulted in 120 acres being cleared of 31,861 Ribes at a cost of \$170.14. During 1931, initial control work was performed around four nurseries, a total of 101,852 wild Ribes and 403 cultivated bushes being removed from 225 acres at a cost of \$585.13.

Black Currant Eradication (Pennsylvania, New Jersey, and Lake States)

Michigan is the only state in the above region that has conducted a special black currant eradication project. The state blister rust law passed in 1929 prohibits the possession of the European black currant in the state. The systematic eradication of these bushes was begun in 1929 on a county basis. During 1929-1931, inclusive, a total of 28,634 black currants were eradicated in 355 towns at a cost of \$20,844.33. These total figures do not include the Ribes nigrum destroyed in connection with the regular control work. To date, the project has been completed in nine counties of the lower peninsula and in six of the upper peninsula.

Field Studies and Investigations (Pennsylvania, New Jersey, and Lake States)

During 1927, a cooperative school survey was conducted in 57 counties of Pennsylvania to determine the extent of the rust on Ribes. Returns from 1,716 schools in 53 counties showed the disease distributed over 37 counties, extending west nearly to the Ohio border and south to the Maryland line - detailed report submitted by McCubbin. Forest type survey made in Pennsylvania by Hirt during 1927 - pine data summarized and made available for state and federal use. A similar survey was made in Michigan during 1928 and 1929 - these data summarized and copies furnished the state and federal offices. During 1922 to 1930, experiments on Ribes eradication and Ribes ecology were conducted at Eau Galle, Wisconsin - preliminary report of this study prepared by Ninman. Pine infection and Ribes regrowth plots were established in Minnesota during 1927 - plots rechecked in 1928 and 1929 - summary of conditions given in the Minnesota annual report for 1929. Forest type surveys have also been made in Wisconsin and Minnesota - data summarized and made available for state and federal use.

DETAILED SUMMARY AND ANALYSIS, BY STATES, OF
COOPERATIVE CONTROL ACTIVITIES IN NEW ENGLAND AND
NEW YORK DURING 1931

INFORMATIONAL ACTIVITIES

GENERAL INFORMATIONAL ACTIVITIES OF PERMANENT AGENTS IN NEW ENGLAND NEW YORK
DURING 1931 - BASED ON TOTALS AND AVERAGES FOR EACH STATE

State	Meetings Addressed		Field Dem. Meetings		Displays Placed		Mimeographed Articles Dist.		Publications Distributed		Items Published		Posters and Signs Placed		Roadside Dem. Placed	
	Total	Ave. Per Agt.	Total	Ave. Per Agt.	Total	Ave. Per Agt.	Total	Ave. Per Agt.	Total	Ave. Per Agt.	Total	Ave. Per Agt.	Total	Ave. Per Agt.	Total	Ave. Per Agt.
Maine	16	4.0	-	-	13	3.2	1071	267.7	4039	1009.7	7	1.7	443	110.7	12	3.0
N. H.	29	4.4	7	1.1	46	7.0	5718	866.4	6826	1034.2	114	17.3	481	72.9	10	1.5
Vt.	3	5.0	2	3.3	2	3.3	2	3.3	580	966.7	13	21.7	149	248.3	-	-
Mass.	2	0.4	2	0.4	15	3.2	251	53.4	10,086	2146.0	63	13.4	46	9.8	24	5.1
R. I.	22	22.0	2	2.0	7	7.0	525	525.0	6,650	6650.0	44	44.0	111	111.0	2	2.0
Conn.	-	-	-	-	No permanent agents employed		-	-	-	-	-	-	-	-	-	-
N. Y.	19	2.0	13	1.4	8	0.8	1532	159.6	5,199	541.6	123	12.8	1061	110.5	1	0.1
Totals	91	3.4	26	1.0	91	3.4	9099	343.4	33,380	1259.6	364	13.7	2291	86.5	49	1.8

Note: The above averages were obtained by dividing the total state figures by the average number of permanent agents employed during the year, the latter number being weighted according to the length of time each agent worked.

Due to the fact that the number of agents varies in the cooperating states, no satisfactory comparison can be made of the volume of such work performed in the different states based on total figures. However, a comparison is possible on the basis of the work done by the average permanent agent in each state, as given in the summary on page 26.

It will be noted that the agent in Rhode Island rated above the average for all states in each of the general informational activities, while the New Hampshire men were above the average in all but four items. In the other states, the average permanent agent's work was below the average in the majority of the general informational activities.

Comparison of 1930 and 1931 General Informational Activities of Permanent Blister Rust Control Agents

Items	1930	1931	% Of Decrease 1931 Over 1930
Roadside demonstrations	81	49	39.5
Publications distributed	45,580	33,380	26.8
Items published	517	364	29.6
Meetings addressed	143	91	36.4
Attendance	8,269	7,682	7.1
Window & fair demonstrations	201	91	54.7
Mimeographed articles dist.	20,669	9,099	56.0
Posters and signs placed	2,579	2,291	11.2
Field demonstration meetings	39	26	33.3
Attendance	990	764	22.8

The decreases in informational work during 1931 are partly due to fewer agents being employed and to the fact that such activities have not been emphasized as strongly during the past few years. Previously, it was necessary to stress such features in order to arouse the attention and interest of the public and create a desire for control work. The control program has now reached a stage where the chief objective is to retain public interest in maintaining control and this can be accomplished

with a reduced volume of general informational work.

A comparison of the 1930 and 1931 activities in each state, however, shows there were general decreases in Maine, New Hampshire, Vermont, and Massachusetts, while in Rhode Island and New York increases occurred in at least half of the items. A similar comparison of each agent's work shows decreases in the majority of the general informational features for 16 of the 27 permanent agents who were employed continuously during the two years. The results of these comparisons in some instances may indicate possible reasons for reduced cooperation in Ribes eradication work. The analysis of each agent's work will be discussed with the respective state leaders and corrective action taken where necessary.

Summary of General Informational Activities of Temporary
Blister Rust Control Agents During 1931

General Informational Activities	Maine	Vermont	Conn.	Totals
Roadside demonstrations placed	9	4	19	32
✓ Publications distributed	833	1260	595	2688
✓ Items published	1	5	2	8
✓ Meetings addressed	-	4	-	4
✓ Attendance	-	170	-	170
✓ Window and fair demon. placed	3	14	1	18
Mimeographed articles distributed	-	-	66	66
✓ Posters and signs placed	429	100	102	631
✓ Field demonstration meetings	-	2	2	4
✓ Attendance	-	32	44	76

Although the general informational work of the temporary agents comprised only a small proportion of the total amount of such work in New England and New York; yet the 10 temporary men in Maine placed 42.8% of the roadside demonstrations, distributed 17.1% of the publications, published 12.5% of the news items, placed 18.7% of the window or fair demonstrations and 49.2% of the posters and signs in that state. All informational activities in Connecticut during 1931 were performed by 3 temporary agents, as no permanent agents were employed. In Vermont, the two temporary men placed all the roadside demonstrations, distributed 68.5% of the publications, published 27.8% of the news items, held 57.1% of the indoor meetings and 50% of the field demonstration meetings, placed 87.5% of the window and fair demonstrations, and put up 40.2% of the posters and signs.

PERSONAL INFORMATIONAL ACTIVITIES OF PERMANENT AGENTS IN NEW
ENGLAND AND NEW YORK DURING 1931 - BASED ON TOTALS AND
AVERAGES FOR EACH STATE

State	No. Initial Interviews		No. Follow-up Calls		Personal Instruction in Field	
	Total	Weighted Ave. Per Agent	Total	Weighted Ave. Per Agent	Total No. Individuals	Weighted Ave. Per Agent
Maine	734	183.5	255	63.7	75	18.7
N. H.	1045	158.3	1858	281.5	464	70.3
Vt.	328	546.7*	110	183.3	136	226.7
Mass.	883	187.9	298	63.4	387	82.3
R. I.	258	258.0	390	390.0	41	41.0
Conn.	-	-	-	-	-	-
N. Y.	1361	141.8	1604	167.1	448	46.7
Totals	4609	173.9	4515	170.4	1551	58.5

*Employed part time

A comparison of personal informational activities in the various states, based on the work of the average permanent agent in each state, shows that the Vermont agent rated above the average for all states in all three phases of this work while the results attained by the average permanent agent in New Hampshire, Massachusetts and Rhode Island were above the average in two of the items. Maine rated above average in initial interviews, but was below in the other two features. New York fell below the average in all three phases of the personal informational work, chiefly because a larger part of the average agent's time was devoted to pine classification and Ribes scouting.

CLASSIFICATION, BY PURPOSE, OF INITIAL INTERVIEWS AND FOLLOW-UP CALLS MADE
BY PERMANENT BLISTER RUST CONTROL AGENTS IN NORTHEASTERN STATES DURING 1931

Item		Maine			N.H.			Vt.			Mass.			R.I.			N.Y.			Totals		
		No.	Ave. Per Agt.		No.	Ave. Per Agt.		No.	Ave. Per Agt.		No.	Ave. Per Agt.		No.	Ave. Per Agt.		No.	Ave. Per Agt.		No.	Ave. Per Agt.	
Initial Inter- views	Purpose																					
				Erad.of wild & cult. Ribes	21	5.2	58	8.8	241	401.7	280	59.6	10	10	94.2	1514	57.1					
				Erad.of cult. Ribes only	19	4.8	67	10.1	14	23.3	433	92.1	19	19	12.8	675	25.5					
				General sup- port only	694	173.5	920	139.4	73	121.7	170	36.2	229	229	34.8	2420	91.3					
				Total number	734	183.5	1045	158.3	328	546.7	883	187.9	258	.258	141.8	4609	173.9					
Follow- up Calls	Purpose																					
				Erad.of wild & cult. Ribes	1	0.2	38	5.8	99	165.0	104	22.1	-	-	111.4	1311	49.5					
				Erad.of cult. Ribes only	-	-	45	6.8	7	11.7	124	26.4	4	4	13.5	310	11.7					
				General sup- port only	254	63.5	1775	268.9	4	6.6	70	14.9	386	386	42.2	2894	109.2					
				Total number	255	63.7	1858	281.5	110	183.3	298	63.4	390	390	167.1	4515	170.4					

(No permanent blister rust control agents employed in Connecticut)

Of the total initial interviews, 52.5% were for the purpose of obtaining general support, 32.8% to secure the eradication of wild and cultivated Ribes, and 14.7% to obtain the cooperation of individuals in destroying cultivated Ribes only. The percentages for the follow-up calls based on similar purposes were 64.1%, 29.0%, and 6.9%, respectively. It will be noted that in the states where control work is conducted chiefly in cooperation with towns (Maine and New Hampshire) or where the state pays the entire costs (Rhode Island) the majority of the initial interviews and follow-up calls were for the purpose of obtaining general support only. In the other states where most of the control work is performed in cooperation with individuals, the bulk of the interview work was in connection with the solicitation of such cooperation.

PERSONAL INFORMATIONAL ACTIVITIES OF TEMPORARY AGENTS
IN NEW ENGLAND AND NEW YORK DURING 1931

Item	Maine	Vermont	Connecticut	Totals
Initial interviews	484	226	470	1,180
Follow-up calls	26	224	675	925
Persons instructed in field	171	163	185	519

All of the personal informational work in Connecticut during 1931 was performed by temporary agents. In Maine, the temporary men made 39.7% of the initial interviews and 9.3% of the follow-up calls, and directed 69.5% of the persons receiving individual instruction in the field. The service work of the temporary agents in Vermont represents 40.8% of the initial interviews in that state, 67.1% of the follow-up calls, and 54.3% of the individuals given personal instruction in the field.

Comparison of 1930 and 1931 Personal Informational Work
of Permanent Blister Rust Control Agents

Items	1930	1931	% Decrease 1931 Over 1930
Initial interviews	6,163	4,609	25.2
Follow-up calls	4,865	4,515	7.2
Persons instructed in field	2,436	1,551	36.3

The employment of fewer permanent agents during 1931 accounts in part for the decreases in all phases of the personal informational work. A comparison of the two years' work in the various states shows that this general decline is principally due to decreases in Maine, New Hampshire, Vermont, and Massachusetts. The decreases in Maine were due to the new policy whereby the bulk of the control work is done in cooperation with towns rather than with individuals as in the past. Under this plan, less interview work is necessary. The agents in New York and Rhode Island made more initial interviews and follow-up calls in 1931 than during the previous year. It is interesting to note that while the average permanent agent in New York was below the average for all states in interview work, yet an increased amount of this work was performed during 1931. There was a general decrease in all states during 1931 in the number of persons receiving individual instruction in the field.

A comparison of personal informational activities performed by each permanent agent during 1930 and 1931 shows decreases during 1931 in two of the three phases of this work for 15 of the 27 agents employed continuously during the two years.

COOPERATIVE RIBES ERADICATION WORK

COOPERATIVE RIBES ERADICATION IN NEW ENGLAND AND NEW YORK DURING 1931

(Based on totals and per acre values for each state, including both initial and reprotecton work)

State	No. Acres Examined	Ribes Pulled		Total Cost	Per Acre Values	
		Wild	Cult.		Cost	Ribes
Maine	114,889	1,283,439	5,002	\$16,940.47	\$.147	11.2
N. H.	179,409	3,024,150	4,222	50,261.99	.280	16.9
Vt.	11,860	49,114	132	4,149.07	.350	4.1
Mass.	116,691	264,246	6,658	13,848.23	.119	2.3
R. I.	No wild Ribes eradication work performed during 1931.					
Conn.	23,714	115,459	515	5,757.98	.243	4.9
N. Y.	133,473	1,515,721	5,887	60,167.91	.451	11.4
Totals	580,036	6,252,129	22,416	\$151,125.65	\$.261	10.8

Comparison, by States, of Acreage Eradicated of Ribes and Per Acre Costs in New England and New York During 1930 and 1931. (Initial and Reptecton Work)

State	Acreage Eradicated		Per cent + or - in Acreages Eradicated Over 1930	Cost Per Acre		Increase or Decrease in Per Acre Cost 1931 Over 1930	Increase or Decrease in Ribes Per Acre 1931 Over 1930
	1931	1930		1931	1930		
Maine	114,889	195,249	-41.2	.147	.102	+.045	-1.0
N. H.	179,409	225,303	-20.4	.280	.216	+.064	-4.3
Vt.	11,860	13,172	-9.9	.350	.455	-.105	-3.1
Mass.	116,691	136,988	-14.9	.119	.135	-.016	-5.2
R. I.	-	-	-	-	-	-	-
Conn.	23,714	44,586	-46.8	.243	.130	+.113	+3.8
N. Y.	133,473	107,263	+24.5	.451	.496	-.045	-2.2
Totals	580,036	722,561	-19.7	.261	.210	+.051	+0.5

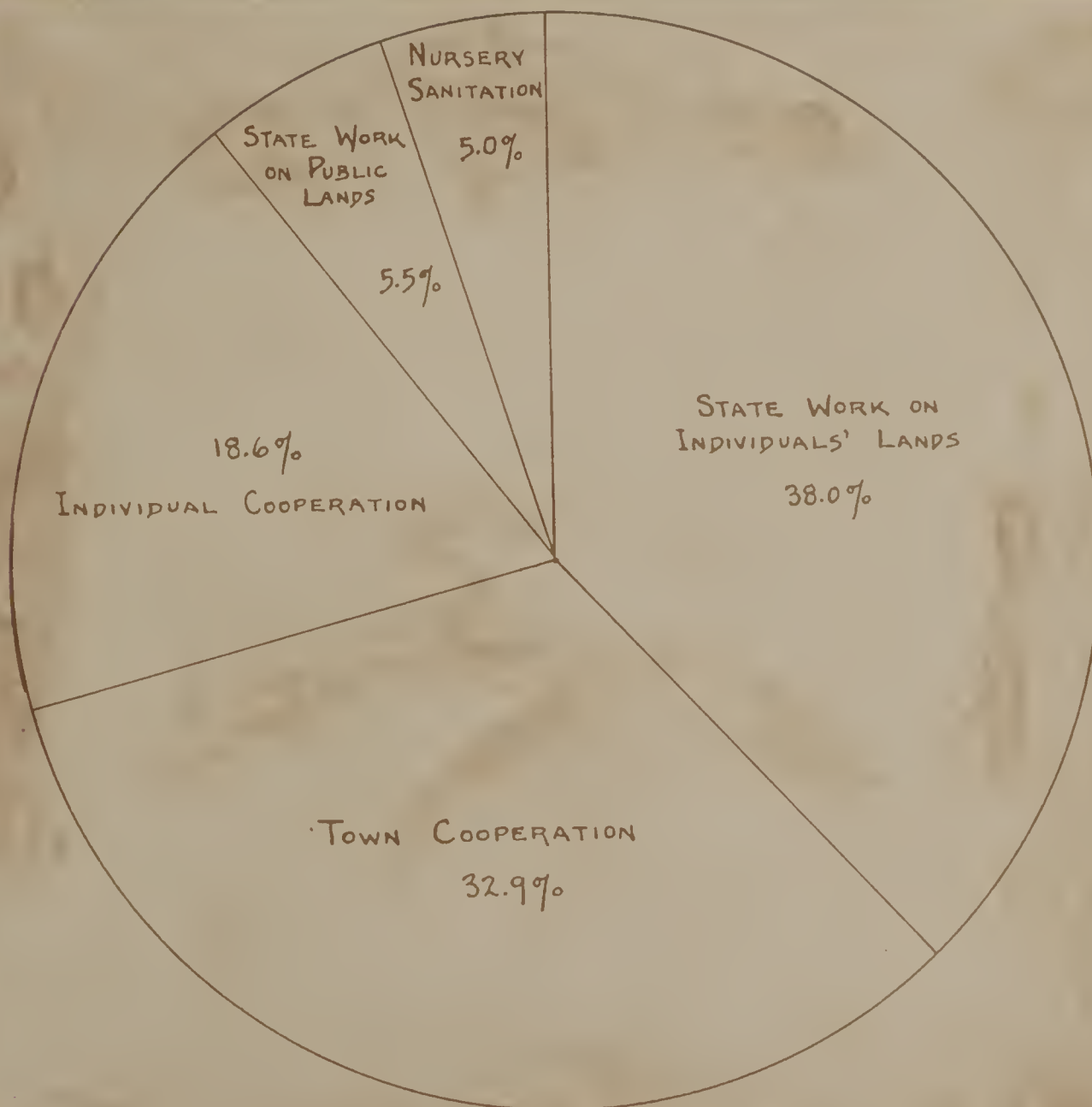
No wild Ribes eradication has been conducted in Rhode Island since 1928. Recent control activities in that state have been confined to elimination of Ribes nigrum. A total of 13,929 black currants have been destroyed in connection with this project in Rhode Island. A detailed summary is given on page 147 of this report.

As shown in the preceding table, less acreage was cleared of Ribes in 1931 than in 1930 in all states except New York. In that state, an increase occurred chiefly because a larger proportion of the control areas were worked by scouting methods. Decreases in the other states can be attributed to various causes. Over 84 per cent of the total control area in New England had been initially worked for Ribes by 1930. Therefore, activities during 1931 were confined chiefly to odd scattered jobs and to control work in backward towns and on the properties of recalcitrant pine owners. Such cooperation has, of course, been more difficult to secure and supervise. The depression has also been a factor in causing the postponement of control activities, especially by the less progressive towns and individuals. Other special factors caused decreases. In Massachusetts and Connecticut, a large part of the control work was confined to the special projects of eliminating Ribes nigrum and to nursery sanitation. The decrease in Maine can be attributed in part to a change in policy whereby higher quality work was secured by covering a larger proportion of the control areas by systematic crew methods. In New Hampshire, the problem was chiefly one of securing cooperation from scattered backward towns in sections which contained more than the average number of Ribes.

DETAILED SUMMARY AND ANALYSIS BY STATES OF THE PROJECT "RIBES ERADICATION"
IN NEW ENGLAND AND NEW YORK DURING 1931

This information will be summarized and discussed according to the three following classes of Ribes eradication: (I) Initial and ReProtection (pages 37 to 44), (II) Initial work (pages 45 to 50), and (III) ReProtection work (pages 51 to 55). Each of these three classes is further subdivided into the five kinds of control work, namely: (A) Individual cooperation, (B) Town cooperation, (C) State work on individuals' lands, (D) State work on public lands, and (E) Nursery sanitation work.

Proportion of Total Area Cleared of Ribes in New England
and New York During 1931 by Classes of Control Work



TOTAL AREA CLEARED OF RIBES - 580,036 ACRES

I. - INITIAL AND REPROTECTION WORK

A. - Individual Cooperation in Ribes Eradication in New England and New York During 1931

State	No. Cooperators		% Of Total No. Cooperators (Wild Ribes Eradication) In Northeastern States Obtained in Each State	Total Cost to Individuals	% Of Total Cost To Individuals In Northeastern States Shared by Cooperators in Each State
	Wild & Cult. Ribes Erad.	Cult. Ribes Erad. Only			
Maine	30	-	2.7	\$1,696.43	8.0
N. H.	27	-	2.5	2,338.65	11.1
Vt.	154	-	14.0	3,286.17	15.5
Mass.	261	753	23.7	2,754.25	13.0
Conn.	13	-	1.2	147.00	0.7
N. Y.	614	-	55.9	10,945.07	51.7
Totals	1,099	753	100.0	\$21,167.57	100.0

This summary includes expenditures by individuals on the regular control work, nursery sanitation, and black currant eradication.

Results of Individual Cooperation in Ribes Eradication Work,
With and without State Supervision, in New England and New York
During 1931

Initial and ReProtection Work

State		Maine	N. H.	Vt.	Mass.	Conn.	N. Y.	Totals
Coop. Erad.	Cult. Ribes Only	-	-	-	122	-	-	122
	Wild and Cult. Ribes	29	26	154	261	4	611	1,085
Acreage Examined		1,685	7,647	11,610	26,789	1,163	59,470	108,364
Wild Ribes Pulled		121,686	139,485	48,697	114,761	15,453	647,969	1,088,051
Cult. Ribes Pulled		84	82	132	2,404	104	2,103	4,909
Cost	State	\$42.82	\$582.22	\$358.60	\$2,486.38	\$203.82	\$14,475.62	\$18,149.46
	Federal	-	-	450.50	-	112.75	-	563.25
	Towns	-	-	10.50	-	-	-	10.50
	Individuals	1,660.43	2,325.93	3,286.17	2,031.50	97.00	10,834.50	20,235.53
	Total	\$1,703.25	\$2,908.15	\$4,105.77	\$4,517.88	\$413.57	\$25,310.12	\$38,958.74
Cost Per Acre		1.01	.380	.354	.169	.356	.426	.360
Ribes Per Acre		72.2	18.2	4.2	4.3	13.3	10.9	10.0

In addition to the cooperation listed above, the following individual money was expended in connection with other classes of control work: town projects in Maine, \$36.00; state scouting work in Connecticut, \$50.00; nursery sanitation projects in New Hampshire and New York, \$123.29; and black currant eradication in Massachusetts, \$722.75.

The federal expenditure in Vermont was for a foreman who supervised the work done by individuals.

Mr. J. H. ...

Over 82 per cent of the total number of individual cooperators were from the States of Massachusetts and New York. Of the total acreage worked in cooperation with individual owners, 54.9% was in New York and 24.7% in Massachusetts. The expenditures by individuals in New York represent 51.7% of the total amount spent by all such cooperators in the Northeastern States during 1931.

The total acreage worked in cooperation with individuals (108,364 acres) represents 18.6% of the total area cleared of Ribes in New England and New York during 1931.

The total cost of this cooperative work with individuals was shared on the following basis: Individuals, 51.93%; States 46.59%; Towns, .03%; and Government, 1.45%. The per cent of the total cost of such work in each state, paid by individual cooperators in the respective states was as follows: Maine, 97.5%; New Hampshire, 80.0%; Vermont, 80.0%; Massachusetts, 45.0%; Connecticut, 23.5%; and New York, 42.8%.

The percentage of increase or decrease in amount of all individual cooperation during 1931 over 1930 is as follows:

Number cooperators eradicating cultivated Ribes only.....	-10.9
Number cooperators eradicating wild and cultivated Ribes.....	-54.9
Number acres eradicated.....	-28.2
Number wild Ribes pulled.....	-63.9
Number cultivated Ribes pulled.....	-73.5
(States.....	-14.2
(Federal.....	+5.1
Cost (Towns.....	-99.8
(Individuals.....	-37.4
(Total.....	-35.2
Cost per acre.....	-9.5
Ribes per acre.....	-50.0

The large decreases in most of the above items are due in part to the change in policy in Maine, which is outlined on page 87.

B. - Town Cooperation in Ribes Eradication in New England
And New York During 1931

(Initial and ReProtection Work)

State	No. Towns Approp.	% Total Number in Each State	Amount Town Funds Appropriated	% Total Funds Approp. In Each State	Amount Town Funds Expended	% Total Funds used in Each State
Maine	50	28.6	\$8,949.00	18.5	\$8,943.13	18.86
N. H.	124	70.8	37,450.00	77.4	37,501.73*	79.02
Vt.	-	-	-	-	10.50**	0.02
Conn.	1	0.6	2,000.00	4.1	1,000.00	2.1
Totals	175	100.0	\$48,399.00	100.0	\$47,455.36	100.0

*Includes expenditures from balances of previous year's appropriation in two towns.

**Balance from previous year's appropriation.

The town funds in Maine, New Hampshire, and Connecticut were used to eradicate Ribes from definite blocks irrespective of property lines, while in Vermont the small sum of town money was expended on excess labor charges of a foreman supervising the work of individuals.

Prior to 1931, town money in Maine has been used chiefly to pay the wages of town foremen, who supervised the work performed by individuals. A new working policy was established in this state during 1931 whereby the state adds 50% to all town appropriations and the control work is performed by trained state crews. Despite the prevailing economic conditions, the results obtained under this new working plan in Maine were very gratifying. The amounts listed for town funds appropriated and expended include \$500.00 subscribed by two Village Improvement Societies on Mount Desert Island.

The town money in New Hampshire was increased 20% by the State. In 84 towns, there were voluntary appropriations amounting to \$24,650.00. In 10 other towns, the State compulsory law was applied to increase voluntary appropriations of \$1,300.00 to \$3,400.00. The State law was also applied in 30 additional towns where no appropriations were made, assessments of \$9,400.00 being ordered. Thus, a total of \$37,450.00 was raised in 124 New Hampshire towns during 1931.

The \$2,000.00 town appropriation in Connecticut includes \$500.00 raised by the town of Salisbury and \$1,500.00 contributed by individuals in this town. Only \$1,000.00 of this \$2,000.00 fund was used during 1931. The balance is available for 1932.

Results of Town Cooperation in Ribes Eradication During 1931
in New England

(Initial and ReProtection Work)

State		Maine	N. H.	Conn.	Totals
Acreage Examined		15,159	171,453	4,092	190,704
Wild Ribes Pulled		1,138,216	2,843,936	82,756	4,064,908
Cult. Ribes Pulled		4,855	4,140	-	8,995
Cost	Towns	\$8,943.13	\$37,501.73	\$1,000.00	\$47,444.86
	Individuals	36.00	-	-	36.00
	State	4,198.93	9,379.95	2,925.86	16,504.74
	Total	\$13,178.06	\$46,881.68	\$3,925.86	\$63,985.60
Cost Per Acre		.869	.273	.959	.336
Ribes Per Acre		75.1	16.6	20.2	21.3

The total acreage worked on the basis of town cooperation (190,704 acres) represents 32.9% of the total area cleared of Ribes in New England and New York during 1931. Of the total acreage worked in cooperation with towns, 89.9% was in New Hampshire.

The individual funds expended in connection with the town projects in Maine represent a contribution by one person in the town of Monmouth in Kimball's district.

The percentage of increase or decrease in town work during 1931 over 1930 is as follows:

Acreage eradicated.....	-20.9%
Wild Ribes pulled.....	+34.3%
Cult. Ribes pulled.....	+136.8%
(Towns.....)	+16.3%
Cost (State.....)	+71.8%
(Total.....)	+25.3%
Cost per acre.....	+53.8%
Ribes per acre.....	+69.0%

REPORT ON THE PROGRESS OF THE WORK DURING THE YEAR 1900

By the Secretary of the Board of Directors

NAME	AGE	SEX	RELATION	STATUS
John Doe	35	M	Head of Family	Married
Mary Doe	32	F	Wife	Married
William Doe	10	M	Son	Single
Elizabeth Doe	8	F	Daughter	Single
James Doe	5	M	Son	Single
Anna Doe	3	F	Daughter	Single
Charles Doe	2	M	Son	Single
Frances Doe	1	F	Daughter	Single
Robert Doe	0	M	Son	Single
Martha Doe	0	F	Daughter	Single

The above is a list of the names of the persons who have been added to the family during the year 1900. It is to be understood that the names of the persons who have been added to the family during the year 1900 are not necessarily the names of the persons who have been added to the family during the year 1900.

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- 1. John Doe
- 2. Mary Doe
- 3. William Doe
- 4. Elizabeth Doe
- 5. James Doe
- 6. Anna Doe
- 7. Charles Doe
- 8. Frances Doe
- 9. Robert Doe
- 10. Martha Doe

C. - Eradication of Ribes, by States, on Individuals' Lands in
New England and New York During 1931

(Initial and Re-protection Work)

State		Maine	Mass.	Conn.	N. Y.	Totals
Acreage Examined		97,965	83,203	795	38,248	220,211
Wild Ribes Pulled		21,135	56,056	12,618	99,317	189,126
Cult. Ribes Pulled		41	4,067	156	1,062	5,326
Cost	State	\$735.37	\$5,876.43	\$165.00	\$7,486.58	\$14,263.36
	Individuals	-	-	50.00	-	50.00
	Govt.	1,271.59	-	181.47	-	1,453.06
	Total	\$2,006.96	\$5,876.43	\$396.47	\$7,486.58	\$15,766.44
Cost Per Acre		.020	.071	.499	.196	.072
Ribes Per Acre		0.2	0.7	15.9	2.6	0.9

The total acreage of such non-cooperative state work on individually owned lands (220,211 acres) represents 38.0% of the total area cleared of Ribes in New England and New York during 1931. In Maine, 85.3% of all the control work in the state was performed on this basis, while in Massachusetts, Connecticut, and New York, it amounted to 71.3%, 3.4%, and 28.7%, respectively.

In Massachusetts and New York, the state paid all costs of such work, while in Maine and Connecticut, the Government paid 63.4% and 45.8% of the scouting costs. Nine individuals in Connecticut also contributed \$50.00 for this scouting work during 1931.

The percentage of increase or decrease in 1931 over similar non-cooperative Ribes eradication work on private lands in 1930 is as follows:

Acreage eradicated.....	-21.1%
Wild Ribes pulled.....	+38.0%
Cult. Ribes pulled.....	-19.3%
(State.....)	+24.2%
Cost (Govt.....)	-36.4%
(Individuals.....)	+88.7%
(Total.....)	+14.3%
Cost per acre.....	+46.9%
Ribes per acre.....	+80.0%

D.- Ribes Eradication Work on Public Lands in New England
and New York During 1931

(Initial and Reprotection Work)

State	N. H.	Vt.	Mass.	N. Y.	Totals
Acreage Examined	284	250	5,537	25,840	31,911
Wild Ribes Pulled	38,854	417	93,398	755,644	888,313
Cult. Ribes Pulled	-	-	187	1,858	2,045
Total Cost (State)	\$456.26	\$43.30	\$2,722.52	\$23,967.96	27,190.04
Cost Per Acre	1.61	.173	.492	.928	.852
Ribes Per Acre	136.8	1.7	16.9	29.2	27.8

The total acreage (31,911 acres) eradicated on public lands represents only 5.5% of the total area cleared of Ribes in New England and New York during 1931. The above summary does not include the special federal control projects as listed on page 85 of this report.

The blister rust control agents supervised all the control work performed on state lands during 1931, and all costs of the work were paid from state funds.

In Massachusetts, such work was conducted in cooperation with three other state departments, \$1,368.12 being expended by these agencies and \$1,354.40 from the regular state appropriation for blister rust control.

Ribes eradication work on state lands in New York was carried on in eight of the thirteen control districts. The recently enacted Hewitt Reforestation law in New York provides a certain portion of the funds for protection purposes. As a result, a total of 16,995 acres, comprising twenty-eight different tracts, were cleared of 419,138 wild Ribes and 1,837 cultivated bushes at a total cost of \$10,938.19, of which \$8,097.86 was expended from Hewitt funds and the balance from the regular state appropriation for blister rust control. All but 485 acres of this work on Hewitt areas was supervised by Agent Harpp.

The percentage of increase or decrease in 1931 over similar state land work conducted in New England and New York during 1930 is as follows:

Acreage eradicated.....	+18.6%
Wild Ribes pulled.....	-20.5%
Cult. Ribes pulled.....	+71.0%
Total cost.....	+26.6%
Cost per acre.....	+ 6.7%
Ribes per acre.....	-33.0%

E. - Ribes Eradication Work in Connection with Nursery Sanitation
Projects in New England and New York During 1931

(Initial and Reprotection Work)

State	Maine	N. H.	Mass.	Conn.	N. Y.	Totals
No. Nurseries Worked	1	1	3	12	8	25
Acreage Examined	80	25	1,162	17,664	9,915	28,846
Wild Ribes Pulled	2,402	1,875	31	4,632	12,791	21,731
Cult. Ribes Pulled	22	-	-	255	864	1,141
Cost	Individuals	\$12.72	-	-	\$110.57	\$123.29
	Govt.	-	-	\$512.42	-	512.42
	State	\$52.20	3.18	\$731.40	3,292.68	4,589.12
	Total	\$52.20	\$15.90	\$731.40	\$3,403.25	\$5,224.83
Cost Per Acre	.653	.636	.629	.058	.343	.181
Ribes Per Acre	30.0	75.0	0.03	0.3	1.3	0.8

The environs of the small state nursery at Orono, Maine, were initially cleared of Ribes during 1931. All costs of this work were paid from funds provided for the operation of the nursery. The sanitation project in New Hampshire was a reexamination of the protective zones around the Fryeburg Nursery in Agent Boomer's district. In Massachusetts, three state nurseries were reexamined for Ribes, the state paying all costs. Initial eradication of Ribes was completed in a sanitation zone around the State Forest Nursery at Barkhamsted, Connecticut, and eleven commercial nurseries were reexamined in this state during 1931, all costs being paid by the state. Two small private nurseries were initially protected from blister rust in New York, and reprotection work was conducted around five of the state nurseries and the Jackson-Perkins Nursery at Arcadia, New York.

The total acreage of the special nursery sanitation projects in New England and New York represents but 5.0% of the total area cleared of Ribes in these states during 1931.

The percentage of increase or decrease in 1931 over similar nursery sanitation work conducted during 1930 is as follows:

Acreage eradicated.....	+17.7%
Wild Ribes pulled.....	-86.3%
Cult. Ribes pulled.....	+38.3%
Total cost.....	-5.9%
Cost per acre.....	-20.3%
Ribes per acre.....	-87.7%

II.- INITIAL CONTROL WORK

Summary of Total Initial Ribes Eradication Work in New England and New York During 1931

State	Acreage Initially Examined	Ribes Pulled		Total Cost	Per Acre Values	
		Wild	Cult.		Cost	Ribes
Maine	112,724	1,213,343	4,868	\$15,545.38	.138	10.8
N. H.	158,004	2,891,692	4,022	46,596.31	.295	18.3
Vt.	8,325	38,827	129	3,168.30	.381	4.7
Mass.	29,815	128,179	4,270	6,491.93	.218	4.3
R. I.	-	-	-	-	-	-
Conn.	4,183	28,863	260	1,021.64	.244	6.9
N. Y.	118,648	1,484,852	4,989	55,475.70	.468	12.5
Totals	431,699	5,785,756	18,538	\$128,299.26	.297	13.4

The total acreage initially cleared of Ribes (431,699 acres) represents 74.4% of all eradication work conducted in New England and New York during 1931.

A.- Initial Ribes Eradication in Cooperation with Individuals
in New England and New York During 1931

State		Maine	N. H.	Vt.	Mass.	Conn.	N.Y.	Totals
Coop. Erad.	Cult. Ribes only	-	-	-	27	-	-	27
	Wild and Cult. Ribes	17	20	138	51	3	591	820
Acres Examined Initially		1,234	3,349	8,175	5,385	715	55,849	74,707
Wild Ribes Pulled		79,987	137,491	38,410	15,253	13,158	630,304	914,603
Cult. Ribes Pulled		54	52	129	1,114	104	2,036	3,489
Cost	State	\$42.82	\$531.27	\$272.35	\$502.97	\$190.83	\$13,864.55	\$15,404.79
	Towns	-	-	3.90	-	-	-	3.90
	Individuals	1,275.93	2,122.13	2,435.75	370.13	30.00	10,228.75	16,462.69
	Govt.	-	-	426.50	-	112.75	-	539.25
	Total	\$1,318.75	\$2,653.40	\$3,138.50	\$873.10	\$333.58	\$24,093.30	\$32,410.63
Cost Per Acre		1.07	.792	.384	.162	.467	.431	.434
Ribes Per Acre		64.8	41.1	4.7	2.8	18.4	11.3	12.2

The initial eradication work conducted in cooperation with individuals (74,707 acres) represents 17.3% of all initial control work performed in New England and New York during 1931. Of the total acreage initially worked in cooperation with individuals, 74.8% was in New York. Individual cooperators in New York contributed 62.1% of the total amount of private funds used in all states on this type of work.

B.- Town Cooperation in Initial Ribes Eradication in New England and New York During 1931

State	No. Towns Approp.	% Total No. In Each State	Amount Town Money Expended	% Total Funds Ex- pended in Each State
Maine	50	29.4	\$8,269.41	19.0
N. H.	119	70.0	35,150.70	80.99
Vt.	1	0.6	3.90	0.01
Totals	170	100.0	\$43,424.01	100.0

Twelve of the towns listed above (5 in Maine, 6 in New Hampshire, and 1 in Vermont) also expended money for reprotection work.

The town funds in Maine and New Hampshire were used chiefly to employ crews to eradicate Ribes from definite blocks irrespective of property lines. The State of Maine increased the amount of town money by fifty per cent, while in New Hampshire, the state added twenty per cent to all town funds appropriated. The small amount of town money expended in Vermont (\$3.90) paid excess labor charges of a foreman supervising the work of individuals.

Results of Town Cooperation in Initial Ribes Eradication
in New England and New York During 1931

State		Maine	N. H.	Totals
Acreage Examined		13,445	154,655	168,100
Wild Ribes Pulled		1,109,819	2,754,201	3,864,020
Cult. Ribes Pulled		4,751	3,970	8,721
Cost	Towns	\$8,269.41	\$35,150.70	\$43,420.11
	State	3,862.06	8,792.21	12,654.27
	Individuals	36.00	-	36.00
	Total	\$12,167.47	\$43,942.91	\$56,110.38
Cost Per Acre		.905	.284	.334
Ribes Per Acre		82.5	17.8	23.0

The total acreage initially cleared of Ribes in cooperation with towns (168,100 acres) comprises 38.9% of the total initial work completed in New England and New York during 1931. Ninety-two per cent of this acreage initially eradicated of Ribes in cooperation with towns was in New Hampshire.

C.- Initial Ribes Eradication Work by States on Individuals'
Lands in New England and New York During 1931

State		Maine	Mass.	Conn.	N. Y.	Totals
Acreage Examined		97,965	19,493	795	36,664	154,917
Wild Ribes Pulled		21,135	20,630	12,618	98,276	152,659
Cult. Ribes Pulled		41	2,969	156	1,062	4,228
Cost	State	\$735.37	\$2,939.06	\$165.00	\$7,372.35	\$11,211.78
	Individuals	-	-	50.00	-	50.00
	Gov't.	1,271.59	-	181.47	-	1,453.06
	Total	\$2,006.96	\$2,939.06	\$396.47	\$7,372.35	\$12,714.84
Cost Per Acre		.020	.151	.499	.201	.082
Ribes Per Acre		0.2	1.1	15.9	2.7	1.0

The acreage worked on this basis (154,917 acres) represents 35.9 per cent of the total acreage initially cleared of Ribes in New England and New York during 1931.

D.- Initial Ribes Eradication Work on Public Lands in New
England and New York During 1931

State	Vt.	Mass.	N. Y.	Totals
Acreage Examined	150	4,937	25,840	30,927
Wild Ribes Pulled	417	92,296	755,644	848,357
Cult. Ribes Pulled	-	187	1,858	2,045
Total Cost	\$29.80	\$2,679.77	\$23,967.96	\$26,677.53
Cost Per Acre	.199	.543	.928	.863
Ribes Per Acre	2.8	18.7	29.2	27.4

The initial eradication work on public lands (30,927 acres) represents 7.2 per cent of the total acreage initially cleared of Ribes in New England and New York during 1931. All costs of this work were paid by the respective states.

E.- Initial Ribes Eradication Work in Connection with Nursery
Sanitation Projects in New England and New York
During 1931

State		Maine	Conn.	N. Y.	Totals
No. Nurseries Worked		1	1	2	4
Acreage Examined		80	2,673	295	3,048
Wild Ribes Pulled		2,402	3,087	628	6,117
Cult. Ribes Pulled		22	-	33	55
Cost	Individuals	-	-	\$5.60	\$5.60
	State	\$52.20	\$151.67	36.49	240.36
	Gov't.	-	139.92	-	139.92
	Total	\$52.20	\$291.59	\$42.09	\$385.88
Cost Per Acre		.653	.109	.143	.127
Ribes Per Acre		30.0	1.2	2.1	2.0

The total area (3,048 acres) worked in connection with special nursery sanitation projects represents only 0.7% of the total acreage initially cleared of Ribes in New England and New York during 1931.

III. - REPROTECTION WORK

Summary of Total Ribes Reeradication Work in New England and New York During 1931

State	Acreage Reexamined	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Maine	2,165	70,096	134	\$1,395.09	\$.644	32.4
N. H.	21,405	132,458	200	3,665.68	.171	6.2
Vt.	3,535	10,287	3	980.77	.277	2.9
Mass.	86,876	136,067	2,388	7,356.30	.085	1.6
Conn.	19,531	86,596	255	4,736.34	.242	4.4
N. Y.	14,825	30,869	898	4,692.21	.316	2.1
Totals	148,337	466,373	3,878	\$22,826.39	.154	3.1

The total acreage reworked (148,337 acres) represents 25.6% of all cooperative eradication work conducted in New England and New York during 1931. Of the total area reexamined, 58.6% was in Massachusetts where 74.4% of the control work was reprotection. The acreage reeradicated of Ribes in Connecticut represents 82.4% of all the work done in that state, while in Vermont, New Hampshire, New York, and Maine, the percentages on a similar basis amount to 29.8%, 11.9%, 11.1%, and 1.9%, respectively.

A.- Ribes Reeradication in Cooperation with Individuals
in New England and New York During 1931

State		Maine	N. H.	Vt.	Mass.	Conn.	N. Y.	Totals
Coop. Erad.	Cult. Ribes Only	-	-	-	95	-	-	95
	Wild and Cult. Ribes	12	9*	16	210	1	20	268*
Acreage Reexamined		451	4,298	3,435	21,404	448	3,621	33,657
Wild Ribes Destroyed		41,699	1,994	10,287	99,508	2,295	17,665	173,448
Cult. Ribes Destroyed		30	30	3	1,290	-	67	1,420
Total Cost	State	-	\$50.95	\$86.25	\$1,983.41	\$12.99	\$611.07	\$2,744.67
	Towns	-	-	6.60	-	-	-	6.60
	Individuals	\$384.50	203.80	850.42	1,661.37	67.00	605.75	3,772.84
	Federal	-	-	24.00	-	-	-	24.00
	Total	\$384.50	\$254.75	\$967.27	\$3,644.78	\$79.99	\$1,216.82	\$6,548.11
Cost Per Acre		.853	.059	.282	.170	.179	.336	.195
Ribes Per Acre		92.5	0.5	3.0	4.6	5.1	4.9	5.2

*Includes three persons who also cooperated in initial control work.

The reprotection work conducted in cooperation with individuals (33,657 acres) represents 22.7% of the total area reexamined in New England and New York during 1931, and 31.1% of all the work (initial and reprotection) done in cooperation with individuals. As in the preceding tables on individual cooperation, this summary includes both the work done with and without direct state supervision.

B. - Town Cooperation in Ribes Reeradication in New England and New York During 1931

State	No. Towns Approp.	% Total Number in Each State	Amount Town Money expended	% Total Funds Expended in Each State
Maine	5*	26.3	\$673.72	16.7
N. H.	12**	63.1	2,351.03	58.3
Vt.	1*	5.3	6.60	0.2
Conn.	1	5.3	1,000.00	24.8
Totals	19	100.0	\$4,031.35	100.0

*Also cooperated in initial control work.

**Includes six towns which also cooperated in initial control work.

The town funds in Maine, New Hampshire, and Connecticut were turned over to the state and used to eradicate Ribes from definite blocks regardless of property lines. In Vermont, the town money was used to pay excess labor charges of foremen supervising the work of individuals.

Results of Town Cooperation in Reeradication of Ribes in New England and New York During 1931

State		Maine	N. H.	Conn.	Totals
Acreage Examined		1,714	16,798	4,092	22,604
Wild Ribes Pulled		28,397	89,735	82,756	200,888
Cult. Ribes Pulled		104	170	-	274
Cost	Towns	\$673.72	\$2,351.03	\$1,000.00	\$4,024.75
	State	336.87	587.74	2,925.86	3,850.47
	Total	\$1,010.59	\$2,938.77	\$3,925.86	\$7,875.22
Cost Per Acre		.590	.175	.959	.348
Ribes Per Acre		16.6	5.3	20.2	8.9

C.- Ribes Reeradication Work by State on Individuals' Lands
In New England and New York During 1931

State	Acreage Reexamined	Ribes Pulled		Total Cost	Per Acre Values	
		Wild	Cult.		Cost	Ribes
Mass.	63,710	35,426	1,098	\$2,937.37	.046	0.6
N. Y.	1,584	1,041	-	114.23	.072	0.7
Totals	65,294	36,467	1,098	\$3,051.60	.047	0.6

All of the costs of this work were paid by the respective states.

This reprotection work on individuals' lands (65,294 acres) represents 44% of the total area reexamined in New England and New York during 1931.

D.- Ribes Reeradication Work on Public Lands in New England
and New York During 1931

State	Acreage Reexamined	Ribes Pulled		Total Cost	Per Acre Values	
		Wild	Cult.		Cost	Ribes
N. H.	284	38,854	-	\$456.26	1.61	136.8
Vt.	100	-	-	13.50	.135	-
Mass.	600	1,102	-	42.75	.071	1.8
Totals	984	39,956	-	\$512.51	.521	40.6

All costs of this state land work were paid by the respective states.

This reprotection work on public lands (984 acres) represents only 0.7% of the total area reexamined in New England and New York during 1931.

E.- Ribes Reeradication in Connection with Nursery Sanitation
Projects in New England and New York During 1931

State		N. H.	Mass.	Conn.	N. Y.	Totals
No. Nurseries re-examined		1	3	11	6	21
Acreage reexamined		25	1,162	14,991	9,620	25,798
Wild Ribes pulled		1,875	31	1,545	12,163	15,614
Cult. Ribes pulled		-	-	255	831	1,086
Cost	Individuals	\$12.72	-	-	\$104.97	\$117.69
	Govt.	-	-	\$372.50	-	372.50
	State	3.18	\$731.40	357.99	3,256.19	4,348.76
	Total	\$15.90	\$731.40	\$730.49	\$3,361.16	\$4,838.95
Cost per acre		.636	.629	.049	.349	.188
Ribes per acre		75.0	0.03	0.1	1.3	0.6

This reprotction work in connection with special nursery sanitation projects (25,798 acres) represents 17.4% of the total area reexamined in New England and New York during 1931.

ANNUAL STATISTICAL REPORT OF COOPERATIVE BLISTER RUST CONTROL WORK

State NEW ENGLAND AND NEW YORK.Period YEAR 1931.

REGULAR CONTROL WORK

DISTRICTS,			MAINE	N.H.	VT.	MASS.	R.I.	CONN.	N.Y.	TOTALS FOR STATE
AGENTS' NAMES,										
Period of service this year										
INDIVIDUAL COOPERATION	No. coop. who erad.	Cult. Ribes only,	-	-	-	27	-	-	-	27
		Wild and cult. Ribes	17	20	138	51	-	3	591	820
	Acreage erad.,		1,234	3,349	8,175	5,385	-	715	55,849	74,707
	Wild Ribes erad.,		79,987	137,491	38,410	15,253	-	13,158	630,304	914,603
	Cult. Ribes erad.,		54	52	129	1,114	-	104	2,036	3,489
	Total cost	Individuals,	1,275.93	2122.13	2435.75	370.13	-	30.00	10228.75	16,462.69
		Towns,	-	-	3.90	-	-	112.75	-	539.25
		State,	42.82	531.27	272.35	502.97	-	190.83	13864.55	15,404.79
		Total,	1,318.75	2653.40	3138.50	873.10	-	333.58	24093.30	32,410.63
	Cost per acre,		1.07	.792	.384	.162	-	.467	.431	.434
	Ribes per acre,		64.8	41.1	4.7	2.8	-	18.4	11.3	12.2
TOWN COOPERATION	Town appropri.	Number,	50	119	1	-	-	-	-	170
		Amount,	-	-	-	-	-	-	-	-
	Acreage erad.,		13,445	154,655	-	-	-	-	-	168,100
	Wild Ribes erad.,		1109,819	2754,201	-	-	-	-	-	3,864,020
	Cult. Ribes erad.,		4,751	3,970	-	-	-	-	-	8,721
	Total cost	Individuals	36.00	-	-	-	-	-	-	36.00
		Towns,	8,269.41	35,150.70	-	-	-	-	-	43,420.11
		State,	3,862.06	8792.21	-	-	-	-	-	12,654.27
		Total,	12167.47	43942.91	-	-	-	-	-	56,110.38
	Cost per acre,		.905	.284	-	-	-	-	-	.334
	Ribes per acre,		82.5	17.8	-	-	-	-	-	23.0
STATE WORK ON INDIVIDUALS' LANDS	Acreage erad.		97,965	-	-	19,493	-	795	36,664	154,917
	Wild Ribes erad.		21,135	-	-	20,630	-	12,618	98,276	152,659
	Cult. Ribes erad.		41	-	-	2,969	-	156	1,062	4,228
	Cost to State,		735.37	-	-	2939.06	-	165.00	7372.35	11,211.78
	" " Govt.		1271.59	-	-	-	-	187.47	-	1459.06
	Total cost		2006.96	-	-	2939.06	-	352.47	7372.35	12,714.84
	Cost per acre,		.020	-	-	.151	-	.499	.201	.082
	Ribes per acre,		0.2	-	-	1.1	-	15.9	2.7	1.0
	Acreage erad.,		-	-	150	4,937	-	-	25,840	30,927
	Wild Ribes erad.,		-	-	417	92,296	-	-	755,644	848,357
PUBLIC LANDS	Cult. Ribes erad.,		-	-	-	187	-	-	1,858	2,045
	Total cost, (State)		-	-	29.80	2679.77	-	-	23967.96	26,677.53
	Cost per acre,		-	-	.199	.543	-	-	.928	.863
	Ribes per acre,		-	-	2.8	18.7	-	-	29.2	27.4
	Acreage erad.,		112,644	158,004	8,325	29,815	-	1,510	118,353	428,651
	Wild Ribes erad.,		1210,941	2891,692	38,827	128,179	-	25,776	1484224	5,779,639
	Cult. Ribes erad.,		4,846	4,022	129	4,270	-	260	4,956	18,483
	Total cost	Individuals,	1311.93	2,122.13	2435.75	370.13	-	80.00	10228.75	16,548.69
		Towns,	8269.41	35150.70	3.90	-	-	-	-	43,424.01
		State,	4640.25	9323.48	302.15	6121.80	-	355.83	45204.86	65,948.37
		Govt.	1271.59	-	426.50	-	-	294.22	-	1,992.31
GRAND TOTALS	Total,		15493.18	46596.31	3168.30	6491.93	-	730.05	55433.61	127913.38
	Cost per acre,		.138	.295	.381	.218	-	.483	.468	.298
	Ribes per acre,		10.8	18.3	4.7	4.3	-	17.1	12.5	13.5
	No. persons paid,									
	No. bushes,									
	Amount paid,									
	Merch.,									
	Reprod.,									
	Total,									
	No. acres nonpine land eliminated,									

No wild Ribes eradication work performed during 1931.

Indiv.

SPECIAL CONTROL WORK

DISTRICTS,		MAINE	N.H.	VT.	MASS.	R.I.	CONN.	N.Y.	TOTALS FOR STATE
AGENTS' NAMES,									
NURSERY SANITATION	No. nurseries worked,	1	-	-	-	-	1	2	4
	Acreage examined for wild Ribes,	80	-	-	-	-	2,673	295	3,048
	Wild Ribes erad.,	2,402	-	-	-	-	3,087	628	6,117
	Cult Ribes erad.,	22	-	-	-	-	-	33	55
	Total cost	Individuals,	-	-	-	-	-	5.60	5.60
		Towns, Govt.,	-	-	-	-	139.92	-	139.92
		State,	52.20	-	-	-	151.67*	36.49	240.36
		Total,	52.20	-	-	-	291.59	42.09	385.88
	Ribes compensation	No. persons paid,	-	-	-	-	-	-	-
		No. bushes,	-	-	-	-	-	-	-
		Amount paid,	-	-	-	-	-	-	-
BLACK CURRANT ERADICATION	No. towns worked,	-	-	-	103	-	-	29	-
	No. towns completed,	-	-	-	102	-	-	29	-
	No. of patches,	-	-	-	1,330	-	-	211	-
	No. bushes erad.,	-	-	-	11,716	-	-	1,443	-
	No. bushes not erad.,	-	-	-	10	-	-	-	-
	Total cost	Individuals,	-	-	722.75	-	-	-	-
		Towns, Govt.,	-	-	100.00	-	-	-	-
		State,	-	-	8515.80	-	-	1817.92	-
		Total,	-	-	9338.55	-	-	1817.92	-
	Ribes compensation	No. persons paid,	-	-	12	-	-	-	-
		No. bushes,	-	-	211	-	-	-	-
		Amount paid,	-	-	97.00	-	-	-	-

*Includes \$80.00 expended by State Forestry Dept.

PERSONNEL EMPLOYED ON RIBES ERADICATION WORK

CLASSES		Owners' labor	STATE LABOR					TOTAL
			Crew men	Foremen	Scouts	Erad. ass'ts	Total	
No. Men Used	Regular control work,							
	Nursery sanitation,							
	Black currant erad.,							
	Total,							

STATE AND FEDERAL EXPENDITURES FOR ALL BLISTER RUST CONTROL PROJECTS DURING CALENDAR YEAR

PROJECTS		Supervision	B.R.C. Agent Act.	Ribes eradication	Erad. ass'ts and checkers	Black currant erad.	Field data	Nursery sanitation	Ribes compensation	TOTALS
SALARIES or WAGES	State,*									
	Federal,									
	Total,									
EXPENSES	State,*									
	Federal,									
	Total,									
GRAND TOTAL										

NOTE.—In figuring cost of "REGULAR CONTROL WORK," include expenditures for the following three items: (1) the actual total amount expended by individuals, towns, and State on wages and any subsistence expenses for laborers, foremen, and scouts; (2) the value of owners' labor figured at the prevailing wage rate paid to farm labor, usually 40 cents per hour; (3) expenditures for transportation of men actually engaged in eradicating Ribes and for equipment such as picks and trail paper.

Under heading "SPECIAL CONTROL WORK," list only data for nursery sanitation and black currant eradication when these two activities were performed as special projects. If these special projects were not conducted under the direction of the district blister rust control agent, designate accordingly.

*Includes combined expenditures of individuals, towns, and State.

ANNUAL STATISTICAL REPORT OF COOPERATIVE BLISTER RUST CONTROL WORK

State NEW ENGLAND AND NEW YORKPeriod YEAR 1931

REGULAR CONTROL WORK

DISTRICTS,			MAINE	N.H.	VT.	MASS	R.I.	CONN.	N.Y.	TOTALS FOR STATE
AGENTS' NAMES,										
Period of service this year										
INDIVIDUAL COOPERATION	No. coop. who erad.	Cult. Ribes only,	-	-	-	95	-	-	-	95
		Wild and cult. Ribes	12	9*	16	210	1	20	268*	
	Acreage erad.,		451	4,298	3,435	21,404	448	3,621	33,657	
	Wild Ribes erad.,		41,699	1,994	10,287	99,508	2,295	17,665	173,448	
	Cult. Ribes erad.,		30	30	3	1,290	-	67	1,420	
	Total cost	Individuals,	384.50	203.80	850.42	1,661.37	67.00	605.75	3,772.84	
		Govt.	-	-	24.00	-	-	-	24.00	
		Towns,	-	-	6.60	-	-	-	6.60	
		State,	-	50.95	86.25	1,983.41	12.99	611.07	2,744.67	
	Total,		384.50	254.75	967.27	3,644.78	79.99	1216.82	6,548.11	
Cost per acre,		.853	.059	.282	.170	.179	.336	.195		
Ribes per acre,		92.5	0.5	3.0	4.6	5.1	4.9	5.2		
TOWN COOPERATION	Town approp.	Number,	5***	12**	1***	-	1	-	-	19
		Amount,	-	-	-	-	-	-	-	-
	Acreage erad.,		1,714	16,798	-	-	4,092	-	22,604	
	Wild Ribes erad.,		28,397	89,735	-	-	82,756	-	200,888	
	Cult. Ribes erad.,		104	170	-	-	-	-	274	
	Total cost	Towns,	673.72	2351.03	-	-	1000.00	-	4,024.75	
		State,	336.87	587.74	-	-	2925.86	-	3850.47	
		Total,	1010.59	2938.77	-	-	3925.86	-	7,875.22	
	Cost per acre,		.590	.175	-	-	.959	-	.348	
	Ribes per acre,		16.6	5.3	-	-	20.2	-	8.9	
STATE WORK ON INDIVIDUALS' LANDS	Acreage erad.		-	-	-	63,710	-	1,584	65,294	
	Wild Ribes erad.		-	-	-	35,426	-	1,041	36,467	
	Cult. Ribes erad.		-	-	-	1,098	-	-	1,098	
	Cost to State,		-	-	-	2,937.37	-	114.23	3,051.60	
	Cost per acre,		-	-	-	.046	-	.072	.047	
	Ribes per acre,		-	-	-	0.6	-	0.7	0.6	
	PUBLIC LANDS	Acreage erad.,		-	284	100	600	-	-	984
		Wild Ribes erad.,		-	38,854	0	1,102	-	-	39,956
		Cult. Ribes erad.,		-	-	-	-	-	-	-
		Total cost, (State)		-	456.26	13.50	42.75	-	-	512.51
Cost per acre,		-	1.61	.135	.071	-	-	.521		
Ribes per acre,		-	136.8	0.0	1.8	-	-	40.6		
GRAND TOTALS	Acreage erad.,		2,165	21,380	3,535	85,714	4,540	5,205	122,539	
	Wild Ribes erad.,		70,096	130,583	10,287	136,036	85,051	18,706	450,759	
	Cult. Ribes erad.,		134	200	3	2,388	-	67	2,792	
	Total cost	Individuals,	384.50	203.80	850.42	1,661.37	67.00	605.75	3,772.84	
		Towns,	673.72	2351.03	6.60	-	1000.00	-	4,031.35	
		State,	336.87	1094.95	99.75	4,963.53	2938.85	725.30	10,159.25	
		Govt.	-	-	24.00	-	-	-	24.00	
	Total,		1395.09	3649.78	980.77	6,624.90	4005.85	1,331.05	17,987.44	
	Cost per acre,		.644	.171	.277	.077	.882	.256	.147	
	Ribes per acre,		32.4	6.1	2.9	1.6	18.7	3.6	3.7	
Ribes Compensation	No. persons paid,		-	-	-	2	-	-	-	
	No. bushes,		-	-	-	50	-	-	-	
	Amount paid,		-	-	-	22.40	-	-	-	
Est. acreage White Pine protected	Merch.,		-	-	-	13,546	1,550	-	-	
	Reprod.,		-	-	-	24,575	1,200	-	-	
	Total,		-	-	-	38,121	2,750	-	-	
No. acres nonpine land eliminated,			-	-	-	22,443	16,880	-	-	

* Includes 3 persons who also cooperated in initial control work.
 † Includes 6 towns which also appropriated for initial control work.

SPECIAL CONTROL WORK

DISTRICTS,		MAINE	N. H.	VT.	MASS.	R. I.	CONN.	N. Y.	TOTALS FOR STATE
AGENTS' NAMES,									
NURSERY SANITATION	No. nurseries worked,	-	1	-	3		11	6	21
	Acreage examined for wild Ribes,	-	25	-	1,162		14,991	9,620	25,798
	Wild Ribes erad.,	-	1,875	-	31		1,545	12,163	15,614
	Cult Ribes erad.,	-	-	-	-		255	831	1,086
	Total cost	Individuals,	12.72	-	-		-	104.97	117.69
		Towns, Govt.,	-	-	-		372.50	-	372.50
		State,	-	-	731.40		357.99	3256.19	4,348.76
		Total,	-	-	731.40		730.49	3361.16	4,838.95
	Ribes compensation	No. persons paid,	-	-	-		-	-	-
		No. bushes,	-	-	-		-	-	-
		Amount paid,	-	-	-		-	-	-
BLACK CURRANT ERADICATION	No. towns worked,	-	-	-	-		-	-	-
	No. towns completed,	-	-	-	-		-	-	-
	No. of patches,	-	-	-	-		-	-	-
	No. bushes erad.,	-	-	-	-		-	-	-
	No. bushes not erad.,	-	-	-	-		-	-	-
	Total cost	Individuals,	-	-	-		-	-	-
		Towns,	-	-	-		-	-	-
		State,	-	-	-		-	-	-
		Total,	-	-	-		-	-	-
	Ribes compensation	No. persons paid,	-	-	-		-	-	-
		No. bushes,	-	-	-		-	-	-
		Amount paid,	-	-	-		-	-	-

PERSONNEL EMPLOYED ON RIBES ERADICATION WORK

CLASSES		Owners' labor	STATE LABOR					TOTAL
			Crew men	Foremen	Scouts	Erad. ass'ts	Total	
No. Men Used	Regular control work,							
	Nursery sanitation,							
	Black currant erad.,							
	Total,							

STATE AND FEDERAL EXPENDITURES FOR ALL BLISTER RUST CONTROL PROJECTS DURING CALENDAR YEAR

PROJECTS		Supervision	B.R.C. Agent Act.	Ribes eradication	Erad. ass'ts and checkers	Black currant erad.	Field data	Nursery sanitation	Ribes compensation	TOTALS
SALARIES or WAGES	State,*	-								
	Federal,	-								
	Total,	-								
EXPENSES	State,*	-								
	Federal,	-								
	Total,	-								
GRAND TOTAL		-								

NOTE.—In figuring cost of "REGULAR CONTROL WORK," include expenditures for the following three items: (1) the actual total amount expended by individuals, towns, and State on wages and any subsistence expenses for laborers, foremen, and scouts; (2) the value of owners' labor figured at the prevailing wage rate paid to farm labor, usually 40 cents per hour; (3) expenditures for transportation of men actually engaged in eradicating Ribes and for equipment such as picks and trail paper.

Under heading "SPECIAL CONTROL WORK," list only data for nursery sanitation and black currant eradication when these two activities were performed as special projects. If these special projects were not conducted under the direction of the district blister rust control agent, designate accordingly.

*Includes combined expenditures of individuals, towns, and State.

ANNUAL STATISTICAL REPORT OF COOPERATIVE BLISTER RUST CONTROL WORK

State NEW ENGLAND AND NEW YORK

Period YEAR 1931

REGULAR CONTROL WORK

DISTRICTS,			MAINE	N. H.	VT.	MASS.	R. I.	CONN.	N. Y.	TOTALS FOR STATE
AGENTS' NAMES,										
Period of service this year										
INDIVIDUAL COOPERATION	No. coop. who erad.	Cult. Ribes only,	-	-	-	122	-	-	-	122
		Wild and cult. Ribes	29	26	154	261	4	611	1,085	
	Acreage erad.,		1,685	7,647	11,610	26,789	1,163	59,470	108,364	
	Wild Ribes erad.,		121,686	139,485	48,697	114,761	15,453	647,969	1,088,051	
	Cult. Ribes erad.,		84	82	132	2,404	104	2,103	4,909	
	Total cost	Individuals,	1660.43	2325.93	3286.17	2031.50	97.00	10834.50	20,235.53	
		Towns,	-	-	450.50	-	112.75	-	563.25	
		State,	42.82	582.22	358.60	2486.38	203.82	14475.62	18,149.46	
		Total,	1703.25	2908.15	4105.77	4517.88	413.57	25310.12	38,958.74	
	Cost per acre,		1.01	.380	.354	.169	.356	.426	.360	
Ribes per acre,		72.2	18.2	4.2	4.3	13.3	10.9	10.0		
TOWN COOPERATION	Town approp.	Number,	50	124	-	-	1	-	175	
		Amount,	8949.00	37450.00	-	-	2000.00	-	48,399.00	
	Acreage erad.,		15,159	171,453	-	-	4,092	-	190,704	
	Wild Ribes erad.,		1138216	2843,936	-	-	82,756	-	4,064,908	
	Cult. Ribes erad.,		4,855	4,140	-	-	-	-	8,995	
	Total cost	Individuals	36.00	-	-	-	-	-	36.00	
		Towns,	8943.13	37,501.73	-	-	1000.00	-	47,444.86	
		State,	4198.93	9379.95	-	-	2925.86	-	16,504.74	
	Total,		13178.06	46881.68	-	-	3925.86	-	63,985.60	
	Cost per acre,		.869	.273	-	-	.959	-	.336	
Ribes per acre,		75.1	16.6	-	-	20.2	-	21.3		
STATE WORK ON INDIVIDUALS' LANDS	Acreage erad.		97,965	-	-	83,203	795	38,248	220,211	
	Wild Ribes erad.		21,135	-	-	56,056	12,618	99,317	189,126	
	Cult. Ribes erad.		41	-	-	4,067	156	1,062	5,326	
	Cost to State,		735.37	-	-	5,876.43	165.00	7486.58	14,263.38	
	" " Govt.		1271.59	-	-	-	187.47	-	1,459.06	
	" " Individuals		-	-	-	-	50.00	-	50.00	
	TOTAL COST		2006.96	-	-	5,876.43	396.47	7486.58	15,766.44	
	Cost per acre,		.020	-	-	.071	.499	.196	.072	
	Ribes per acre,		0.2	-	-	0.7	15.9	2.6	0.9	
	PUBLIC LANDS	Acreage erad.,		-	284	250	5,537	-	25,840	31,911
Wild Ribes erad.,		-	38,854	417	93,398	-	755,644	888,313		
Cult. Ribes erad.,		-	-	-	187	-	1,858	2,045		
Total cost, (State)		-	456.26	43.30	2722.52	-	23967.96	27,190.04		
Cost per acre,		-	1.61	.173	.492	-	.928	.852		
Ribes per acre,		-	136.8	1.7	16.9	-	29.2	27.8		
GRAND TOTALS		Acreage erad.,		114,809	179,384	11,860	115,529	6,050	123,558	551,190
	Wild Ribes erad.,		1281037	3022275	49,114	264,215	110,827	1502930	6,230,398	
	Cult. Ribes erad.,		4,980	4,222	132	6,658	260	5,023	21,275	
	Total cost	Individuals,	1696.43	2325.93	3286.17	2031.50	147.00	10834.50	20,321.53	
		Towns,	8943.13	37501.73	10.50	-	1000.00	-	47,455.36	
		State,	4977.12	10418.43	401.90	11085.33	3294.68	45930.16	76,107.62	
		Govt.	1271.59	-	450.50	-	294.22	-	2,016.31	
	Total,		16888.27	50246.09	4149.07	13116.83	4735.90	56764.66	145,900.82	
	Cost per acre,		.147	.280	.350	.114	.783	.459	.265	
Ribes per acre,		11.2	16.8	4.1	2.3	18.3	12.2	11.3		
Ribes Compensation	No. persons paid,		-	-	?	9	-	-	-	
	No. bushes,		-	-	?	289	-	-	-	
	Amount paid,		-	-	?	117.25	-	-	-	
Est. acreage White Pine protected	Merch.,		21,960	?	2,057	16,268	1,770	-	-	
	Reprod.,		45,900	?	1,224	32,412	1,746	-	-	
	Total,		67,860	?	3,281	48,680	3516	-	-	
No. acres nonpine land eliminated,			147,079	37,312	?	47,977	30,950	-	-	

(See note on reverse side) * Includes \$500. raised by two V.T.A.s in one town
** " 1500. subscribed by individuals.

SPECIAL CONTROL WORK

DISTRICTS,		MAINE	N. H.	VT.	MASS.	R. I.	CONN.	N. Y.	TOTALS FOR STATE
AGENTS' NAMES,									
NURSERY SANITATION	No. nurseries worked,	1	1	-	3	-	12	8	25
	Acreage examined for wild Ribes,	80	25	-	1,162	-	17,644	9,915	28,846
	Wild Ribes erad.,	2,402	1,875	-	31	-	4,632	12,791	21,731
	Cult Ribes erad.,	22	-	-	-	-	255	864	1,141
	Total cost	Individuals,	12.72	-	-	-	-	110.57	123.29
		Towns, -- Govt.	-	-	-	-	512.42	-	512.42
		State,	52.20	3.18	-	731.40	509.66	3292.68	4,589.12
		Total,	52.20	15.90	-	731.40	1022.08	3403.25	5,224.83
	Ribes compensation	No. persons paid,	-	-	-	-	-	-	-
		No. bushes,	-	-	-	-	-	-	-
		Amount paid,	-	-	-	-	-	-	-
BLACK CURRANT ERADICATION	No. towns worked,	-	-	-	103	11	9	29	152
	No. towns completed,	-	-	-	102	9	0	29	140
	No. of patches,	-	-	-	1,330	507	13 Blacks 559 others	211	2,061 Blacks 559 others
	No. bushes erad.,	-	-	-	11,716	4296 Blacks 156 others	126 Blacks 8378 others	1,443	17,581 Blacks 834 others
	No. bushes not erad.,	-	-	-	10	440	2672 others	-	450 Blacks 2,672 others
	Total cost	Individuals, --	-	-	722.75	-	-	-	722.75
		Towns, Govt.	-	-	100.00	473.67	1671.25	-	2,244.92
		State,	-	-	8515.80	1751.82	289.34	1817.92	12,374.88
		Total, --	-	-	9338.55	2225.49	1960.59	1817.92	15,342.55
	Ribes compensation	No. persons paid,	-	-	12	-	-	-	-
		No. bushes,	-	-	211	-	-	-	-
		Amount paid,	-	-	97.00	-	-	-	-

*Includes \$80.00 expended by State Forestry Dept.

PERSONNEL EMPLOYED ON RIBES ERADICATION WORK

CLASSES		Owners' labor	STATE LABOR					TOTAL
			Crew men	Foremen	Scouts	Erad. ass'ts	Total	
No. Men Used	Regular control work,							
	Nursery sanitation,							
	Black currant erad.,							
	Total,							

STATE AND FEDERAL EXPENDITURES FOR ALL BLISTER RUST CONTROL PROJECTS DURING CALENDAR YEAR

PROJECTS		Supervision	B.R.C. Agent Act.	Ribes eradication	Erad. ass'ts and checkers	Black currant erad.	Field data	Nursery sanitation	Ribes compensation	TOTALS
SALARIES or WAGES	State,*									
	Federal,									
	Total,									
EXPENSES	State,*									
	Federal,									
	Total,									
GRAND TOTAL										

NOTE:—In figuring cost of "REGULAR CONTROL WORK," include expenditures for the following three items: (1) the actual total amount expended by individuals, towns, and State on wages and any subsistence expenses for laborers, foremen, and scouts; (2) the value of owners' labor figured at the prevailing wage rate paid to farm labor, usually 40 cents per hour; (3) expenditures for transportation of men actually engaged in eradicating Ribes and for equipment such as picks and trail paper.

Under heading "SPECIAL CONTROL WORK," list only data for nursery sanitation and black currant eradication when these two activities were performed as special projects. If these special projects were not conducted under the direction of the district blister rust control agent, designate accordingly.

*Includes combined expenditures of individuals, towns, and State.

CLASSIFICATION OF COOPERATIVE BLISTER RUST CONTROL FUNDS
USED ON "RIBES ERADICATION" IN NEW ENGLAND AND NEW YORK DURING 1931

State	Maine	N. H.	Vt.	Mass.	Conn.	N. Y.	Totals
Individuals	\$1,696.43	\$2,338.65	\$3,286.17	\$2,031.50	\$147.00	\$10,945.07	\$ 20,444.82
Towns	8,943.13	37,501.73	10.50	-	1,000.00	-	47,455.36
State Appropriation	4,977.12	10,421.61	401.90	9,717.21	3,724.34	41,124.98	70,367.16
All Other State Funds	52.20	-	-	2,099.52	80.00	8,097.86	10,329.58
Federal Funds	1,271.59	-	450.50	-	806.64	-	2,528.73
Totals	\$16,940.47	\$50,261.99	\$4,149.07	\$13,848.23	\$5,757.98	\$60,167.91	\$151,125.65

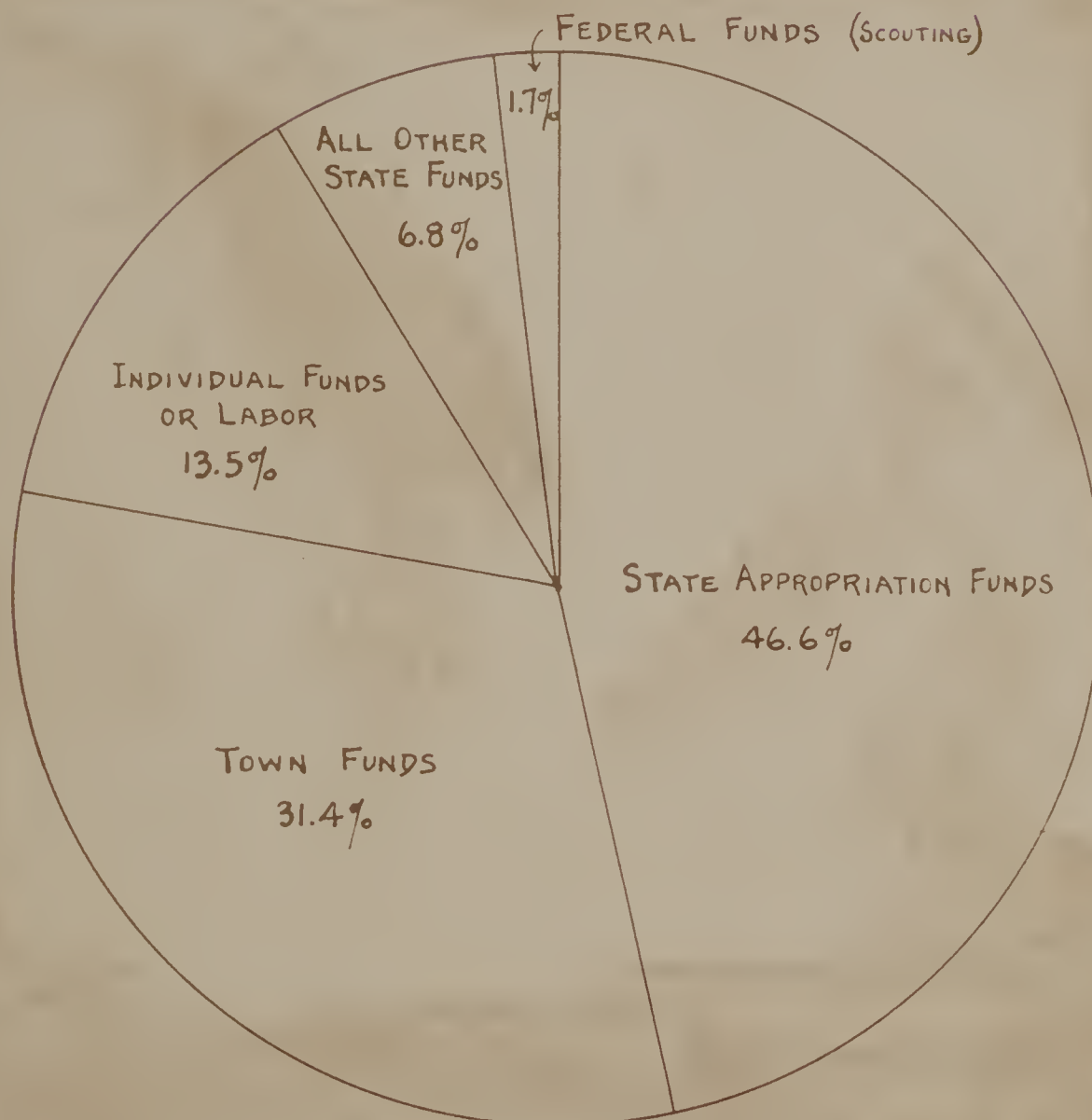
The funds spent on the "Ribes Eradication" project were for laborers, scouts and foremen. The costs of the state checkers in New Hampshire and the eradication assistants in New York are not included in this project.

The total cost of "Ribes Eradication" (\$151,125.65) represents 47.7% of all state and federal expenditures on all blister rust control projects in New England and New York during 1931, as compared with \$152,060.60 and a percentage figure of 46.1% in 1930.

Per Cent of Total State and Federal Funds, in Respective States,
Derived from Various Sources and Expended on the Project "Ribes
Eradication"

[illegible]

SOURCE OF TOTAL FUNDS SPENT ON RIBES ERADICATION IN NEW ENGLAND AND
NEW YORK DURING 1931.



TOTAL COST OF RIBES ERADICATION - \$151,125.65

SUMMARY OF SPECIAL BLACK CURRANT ERADICATION PROJECTS
CONDUCTED IN EASTERN STATES DURING 1931

State		Mass.	R. I.	Conn.	N. Y.	Sub-Total New England and New York	Michigan	Grand Totals All States
Towns Worked		103	11	9	29	152	75	227
Towns Completed		102	9	-	29	140	75	215
Patches Ribes Located		1,330	507	572	211	2,620	312	2,932
Ribes Nigrum Pulled		11,716	4,296	126	1,443	17,581	5,662	23,243
Other Cult. Bushes Pulled		-	156	8,378	-	8,534	-	8,534
Total Ribes Pulled		11,716	4,452	8,504	1,443	26,115	5,662	31,777
Bushes Not Eradicated		10	440	2,672	-	3,122	-	3,122
Cost	Individuals	\$722.75	-	-	-	\$722.75	-	\$722.75
	States	8,515.80	\$1,751.82	\$289.34	\$1,817.92	12,374.88	1566.31	13,941.19
	Govt.	100.00	473.67	1,671.25	-	2,244.92	1348.41	3,593.33
	Total	\$9,338.55	\$2,225.49	\$1,960.59	\$1,817.92	\$15,342.55	\$2914.72	\$18,257.27

The data listed above are not included in the other Ribes eradication summaries. Also, the above table does not include the black currants which were destroyed in connection with the regular control work.

STATE COMPENSATION FOR CULTIVATED RIBES DESTROYED IN
NEW ENGLAND AND NEW YORK DURING 1931

State		Maine	N. H.	Vt.	Mass.	R. I.	Conn.	N. Y.	Totals
Regular Control Work	No.Cult.Ribes Destroyed	4,980	4,222	132	6,658	-	260	5,023	21,275
	No.Bushes for Which Compensation Was Paid	-	-	-	289	-	-	466	755
	No.Persons Paid Compensation	-	-	-	9	-	-	40	49
	Amount Paid	-	-	-	117.25	-	-	233.00	\$350.25
Nursery Sanitation	No.Cult.Ribes Destroyed	22	-	-	-	-	255	864	1,141
	No.Bushes for Which Compensation Was Paid	-	-	-	-	-	-	-	-
	No.Persons Paid Compensation	-	-	-	-	-	-	-	-
	Amount Paid	-	-	-	-	-	-	-	-
Black Currant Eradication	No.Cult.Ribes Destroyed	-	-	-	11,716	4,452	8,504	1,443	26,115
	No.Bushes for Which Compensation Was Paid	-	-	-	211	-	-	-	211
	No.Persons Paid Compensation	-	-	-	12	-	-	-	12
	Amount Paid	-	-	-	97.00	-	-	-	\$97.00
Total All Control Work	No.Cult.Ribes Destroyed	5,002	4,222	132	18,374	4,452	9,019	7,330	48,531
	No.Bushes for Which Compensation Was Paid	-	-	-	500	-	-	466	966
	Per Cent Total Bushes Paid for	-	-	-	2.7	-	-	6.4	2.0
	No.Persons Paid Compensation	-	-	-	21	-	-	40	61
	Amount Paid	-	-	-	214.25	-	-	233.00	\$447.25
	Average Cost Per Bush (Based on Total No. Destroyed)	-	-	-	.012	-	-	.032	.009

The amounts listed for compensation in Massachusetts represent claims made by owners for bushes eradicated during 1931. Fifteen of these claims were paid during 1931 involving a reimbursement by the State of \$196.70 for 434 bushes destroyed. The remainder of these 1931 claims will be settled during the spring of 1932.

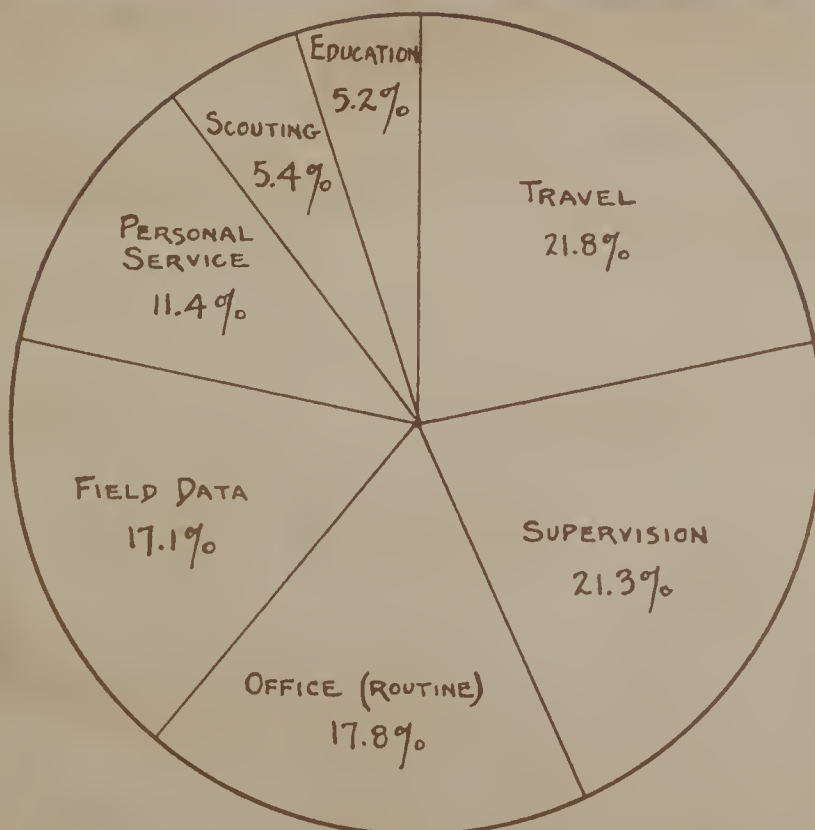
PER CENT OF TIME SPENT ON EACH ACTIVITY BY AVERAGE PERMANENT
AGENT IN NEW ENGLAND AND NEW YORK DURING 1931

State	Education		Personal Service		Supervision		Field Data		Scouting	Office (Routine)	Travel
	Office	Field	Office	Field	Office	Field	Office	Field			
Maine	0.7	5.6	0.1	11.9	2.1	19.9	0.9	2.7	3.3	25.2	27.6
N. H.	2.9	2.7	1.0	10.6	3.7	22.1	6.4	8.7	4.4	15.5	22.0
Vt.	1.8	5.2	1.6	28.5	-	18.1	7.5	1.9	2.3	13.6	19.5
Mass.	0.6	3.2	0.8	7.5	3.9	21.5	2.9	3.3	4.4	29.7	22.2
R. I.	15.0	9.9	25.0	8.9	10.0	5.6	0.5	2.7	4.7	4.8	12.9
Conn.	No permanent agents employed										
N. Y.	1.6	1.5	0.5	8.8	3.6	13.0	22.0	9.1	7.9	12.0	20.0
Totals	2.1	3.1	1.5	9.9	3.6	17.7	10.4	6.7	5.4	17.8	21.8

During 1931, the 28 permanent agents and 15 temporary agents worked a total of 82,055 hours; 14.8 per cent of which was performed by the temporary agents. The average permanent agent worked 328.5 eight hour working days during the year.

In compiling the time data shown in the above table, the hours worked by Agents Clave and Doore, of Massachusetts, on special assignments were not included.

PORTION OF TIME SPENT ON EACH ACTIVITY BY AVERAGE PERMANENT AGENT IN
NEW ENGLAND AND NEW YORK DURING 1931



TOTAL TIME WORKED BY AVERAGE AGENT - 2627.9 HOURS

PERSONNEL EMPLOYED ON COOPERATIVE BLISTER RUST CONTROL WORK
IN NEW ENGLAND AND NEW YORK DURING 1931
(Regardless of length of time employed)

State	Maine	N. H.	Vt.	Mass.	R.I.	Conn.	N. Y.	Totals
State Leaders	1	1	-	1	-	1	1	5
Permanent B.R.C. Agents	4	7	1	5	1	-	10	28
Temporary B.R.C. Agents	10	-	2	-	-	4	-	16
State Checkers and Eradication Assistants	-	3	-	-	-	1	3	7
Foremen	18	21	7	27	1	5	90	169
Scouts	*	23	-	-	-	5	40	68
State Laborers	102	220	7	3	2	14	202	550
Owners' Laborers	16	-	227	1,274	-	17	2,000	3,534
Totals	151	275	244	1,310	4	47	2,346	4,377

*Included with "Temporary Blister Rust Control Agents."

During 1931, a total of 843 state and federal employees were engaged in cooperative blister rust control work in New England and New York. An additional 3,534 individuals (pine or Ribes owners, or their employees) assisted in eradicating Ribes. In the federal control project at Acadia National Park, two foremen and 16 laborers were employed, while in similar federal projects on the Shenandoah, Allegheny, and Monongahela National Forests, 2 foremen and 14 laborers were used. Thus, 4,411 persons actually participated in the field work. Also, many owners paid for the work on their lands, but took no personal part in pulling the bushes; and several hundred other persons permitted the destruction of their cultivated bushes without compensation. Estimated conservatively, 4,700 people had more or less of an active part in the control work. The blister rust control agents also reported that 5,700 individuals gave general support to the work; making a total of 10,400 people who cooperated directly or indirectly in the control work.

TOTAL STATE AND FEDERAL EXPENDITURES, BY PROJECTS,
IN NEW ENGLAND AND NEW YORK DURING CALENDAR YEAR 1931

State and Federal Cooperative Blister Rust Control Funds
Used for All Projects in New England and New York During Calendar Year 1931

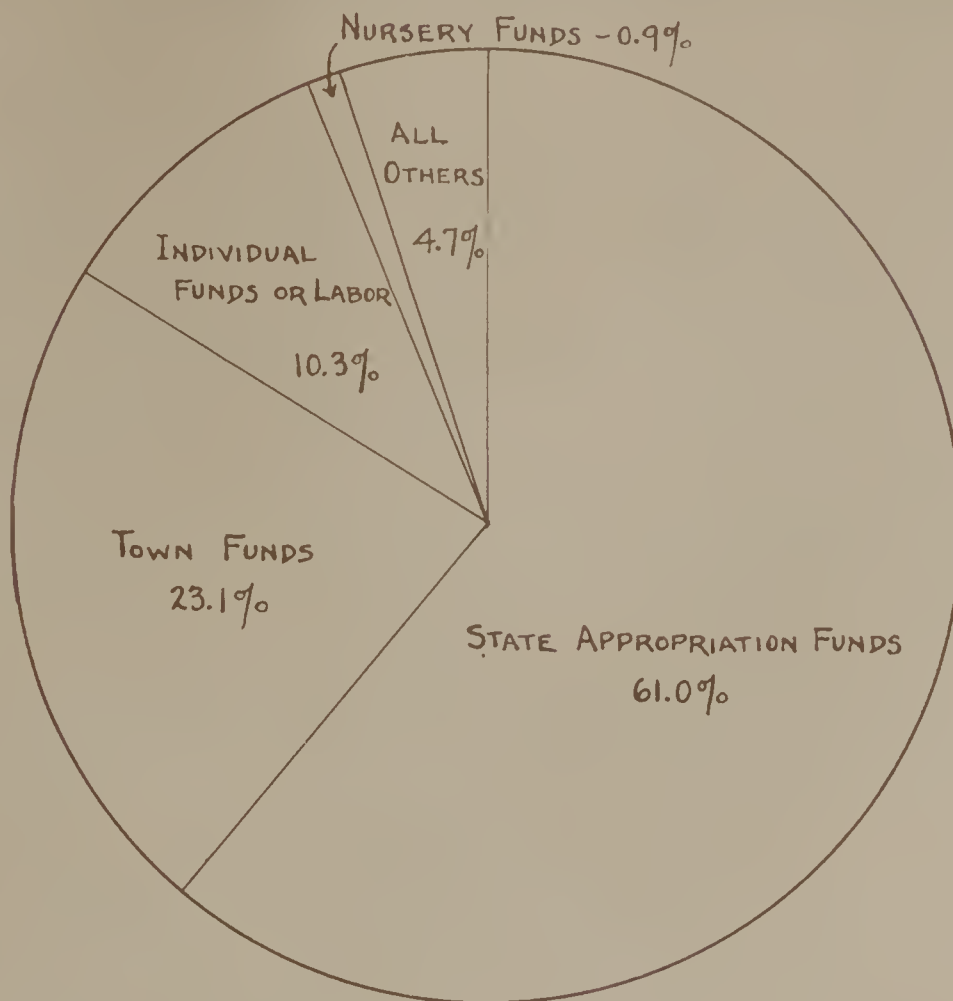
Source of Total State Funds Expended in Various Northeastern
States During Calendar Year 1931

Source of Funds	State Appropriations	Nursery Funds	Town Funds	Individual Funds or Labor	All Other Coop. State Funds	Total State Funds
Maine	\$6,746.44	\$552.20	\$8,943.13	\$1,696.43	-	\$17,938.20
N. H.	18,610.96	-	37,501.73	2,338.65	-	58,451.34
Vt.	1,335.88	-	10.50	3,286.17	-	4,632.55
Mass.	18,852.12	1,407.05	-	2,754.25	1,368.12	24,381.54
R. I.	2,851.47	-	-	-	-	2,851.47
Conn.	8,593.54	-	1,000.00	147.00	87.00	9,827.54
N. Y.	68,569.46	-	-	10,945.07	8,097.86	87,612.39
Totals	\$125,559.87	\$1,959.25	\$47,455.36	\$21,167.57	\$9,552.98	\$205,695.03

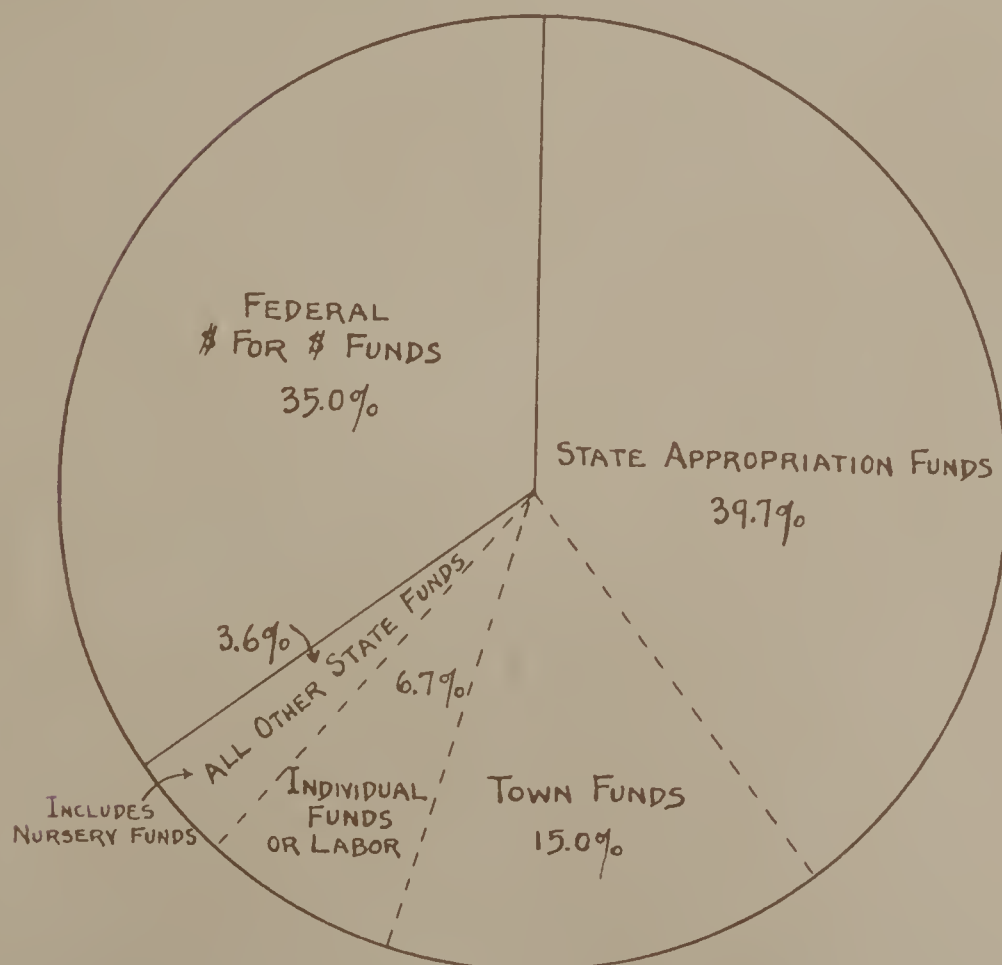
Percentage of Total State Funds in Respective States
Derived from Various Sources

Source of Funds	State Appropriations	Nursery Funds	Town Funds	Individual Funds or Labor	All Other Coop. State Funds	Total State Funds
Maine	37.6	3.1	49.8	9.5	-	100.0
N. H.	31.8	-	64.2	4.0	-	100.0
Vt.	28.9	-	0.2	70.9	-	100.0
Mass.	77.3	5.8	-	11.3	5.6	100.0
R. I.	100.0	-	-	-	-	100.0
Conn.	87.4	-	10.2	1.5	0.9	100.0
N. Y.	78.3	-	-	12.5	9.2	100.0
Totals	61.0	0.9	23.1	10.3	4.7	100.0

PROPORTION OF TOTAL BLISTER RUST CONTROL EXPENDITURES IN NEW ENGLAND AND NEW YORK DURING CALENDAR YEAR 1931 PAID BY VARIOUS COOPERATING AGENCIES



TOTAL STATE EXPENDITURES - \$205,695.03



TOTAL STATE AND FEDERAL EXPENDITURES - \$316,247.99

Total State and Federal Expenditures in New England
and New York During Calendar Year 1931

State	Total State Expenditures	Total Federal \$ for \$ Funds Expended	Total State and Federal Funds Expended	% Total State and Federal Ex- penditures De- rived from Federal \$ for \$ Funds
Maine	\$17,938.20	\$19,475.05	\$37,413.25	52.1
N. H.	58,451.34	24,275.35	82,726.69	29.3
Vt.	4,632.55	4,146.20	8,778.75	47.2
Mass.	24,381.54	19,389.29	43,770.83	44.3
R. I.	2,851.47	3,711.19	6,562.66	56.5
Conn.	9,827.54	9,899.43	19,726.97	50.2
N. Y.	87,612.39	29,656.45	117,268.84	25.3
Totals	\$205,695.03	\$110,552.96	\$316,247.99	35.0

Total State Expenditures, During the Calendar Year 1931,
for the Various Blister Rust Control Projects in the Respective Northeastern States

State	Super- vision	BRC Agent Act.	Ribes Erad- ication	Erad.Assts. and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Totals
Maine	\$1,021.30	\$632.20	\$15,616.68	-	-	-	\$552.20	-	\$115.82	\$17,938.20
N. H.	1,762.75	469.70	50,246.09	\$5,645.80	-	\$35.70	15.90	-	275.40	58,451.34
Vt.	669.34	166.55	3,698.57	-	-	-	-	-	98.09	4,632.55
Mass.	944.74	73.72	13,116.83	-	\$9,238.55	-	731.40	\$276.30	-	24,381.54
R. I.	300.00	-	-	-	1,751.82	799.65	-	-	-	2,851.47
Conn.	740.64	1,718.95	4,441.68	-	289.34	1,095.33	509.66	-	1,031.94	9,827.54
N. Y.	2,188.60	540.16	56,764.66	11,802.29	1,817.92	10,630.80	3,403.25	233.00	231.71	87,612.39
Totals	\$7,627.37	\$3,601.28	\$143,884.51	\$17,448.09	\$13,097.63	\$12,561.48	\$5,212.41	\$509.30	\$1,752.96	\$205,695.03

Percentage of Total State Expenditures, in the Respective
Northeastern States, Paid for Each Project

State	Supervision	BRC Agent Act.	Ribes Erad- ication	Erad.Assts. and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Totals
Maine	5.7	3.5	87.1	-	-	-	3.1	-	0.6	100.0
N. H.	3.02	0.80	85.96	9.66	-	0.06	0.03	-	0.47	100.0
Vt.	14.5	3.6	79.8	-	-	-	-	-	2.1	100.0
Mass.	3.9	0.3	53.8	-	37.9	-	3.0	1.1	-	100.0
R. I.	10.5	-	-	-	61.5	28.0	-	-	-	100.0
Conn.	7.6	17.5	45.2	-	2.9	11.1	5.2	-	10.5	100.0
N. Y.	2.5	0.6	64.8	13.4	2.1	12.1	3.9	0.3	0.3	100.0
Totals	3.7	1.8	69.9	8.5	6.4	6.1	2.5	0.2	0.9	100.0

Total Federal Expenditures, During the Calendar Year 1931, for the Various
Blister Rust Control Projects in the Respective Northeastern States

State	Supervision	BRC Agent Act.	Ribes Erad- ication	Erad.Assts. and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Totals
Maine	\$3,523.92	\$14,637.87	\$1,271.59	-	-	-	-	-	\$41.67	\$19,475.05
N. H.	3,806.23	20,322.56	-	-	-	-	-	-	146.56	24,275.35
Vt.	-	3,687.26	450.50	-	-	-	-	-	8.44	4,146.20
Mass.	3,849.10	15,328.02	-	-	\$100.00	-	-	-	112.17	19,389.29
R. I.	639.00	2,492.19	-	-	473.67	\$106.33	-	-	-	3,711.19
Conn.	1,097.75	6,294.55	294.22	-	1,671.25	-	\$512.42	-	29.24	9,899.43
N. Y.	-	29,509.76	-	-	-	-	-	-	146.69	29,656.45
Total	\$12,916.00	\$92,272.21	\$2,016.31	-	\$2,244.92	\$106.33	\$512.42	-	\$484.77	\$110,552.96

Percentage of Total Federal Expenditures, in Respect to
Northeastern States, Paid for Each Project

State	Supervision	BRC Agent Act.	Ribes Erad- ication	Erad.Assts. and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Misc.	Totals
Maine	18.1	75.2	6.5	-	-	-	-	0.2	100.0
N. H.	15.7	83.7	-	-	-	-	-	0.6	100.0
Vt.	-	88.9	10.9	-	-	-	-	0.2	100.0
Mass.	19.9	79.0	-	-	0.5	-	-	0.6	100.0
R. I.	17.2	67.1	-	-	12.8	2.9	-	-	100.0
Conn.	11.1	63.6	3.0	-	16.9	-	5.1	0.3	100.0
N. Y.	-	99.5	-	-	-	-	-	0.5	100.0
Totals	11.7	83.5	1.8	-	2.0	0.1	0.5	0.4	100.0

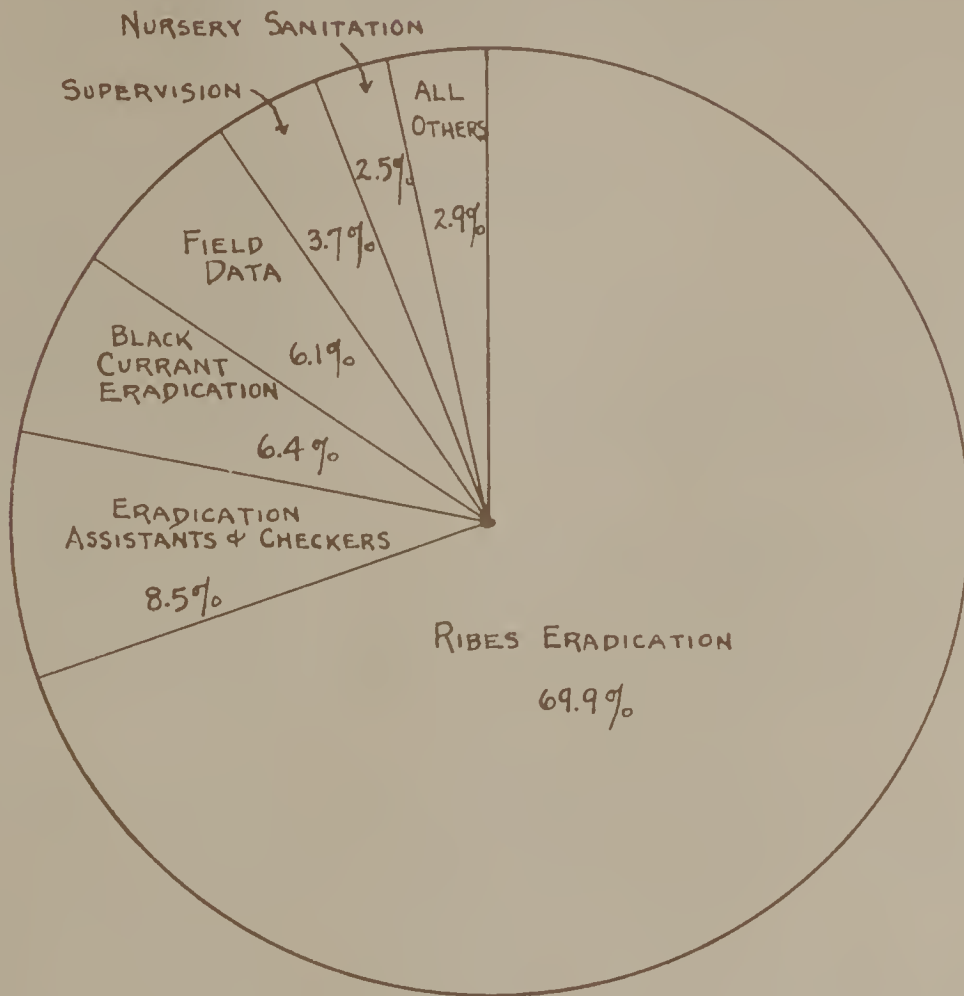
Total State and Federal Expenditures, During the Calendar Year 1931, for the Various
Blister Rust Control Projects in the Respective Northeastern States

State	Super- vision	BRC Agent Act.	Ribes Erad- ication	Erad.Assts. and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Totals
Maine	\$ 4,545.22	\$15,270.07	\$ 16,888.27	-	-	-	\$552.20	-	\$157.49	\$ 37,413.25
N. H.	5,568.98	20,792.26	50,246.09	\$5,645.80	-	\$35.70	15.90	-	421.96	82,726.69
Vt.	669.34	3,853.81	4,149.07	-	-	-	-	-	106.53	8,778.75
Mass.	4,793.84	15,401.74	13,116.83	-	\$9,338.55	-	731.40	\$276.30	112.17	43,770.83
R. I.	939.00	2,492.19	-	-	2,225.49	905.98	-	-	-	6,562.66
Conn.	1,838.39	8,013.50	4,735.90	-	1,960.59	1,095.33	1,022.08	-	1,061.18	19,726.97
N. Y.	2,188.60	30,049.92	56,764.66	11,802.29	1,817.92	10,630.80	3,403.25	233.00	378.40	117,268.84
Totals	\$20,543.37	\$95,873.49	\$145,900.82	\$17,448.09	\$15,342.55	\$12,667.81	\$5,724.83	\$509.30	\$2,237.73	\$316,247.99

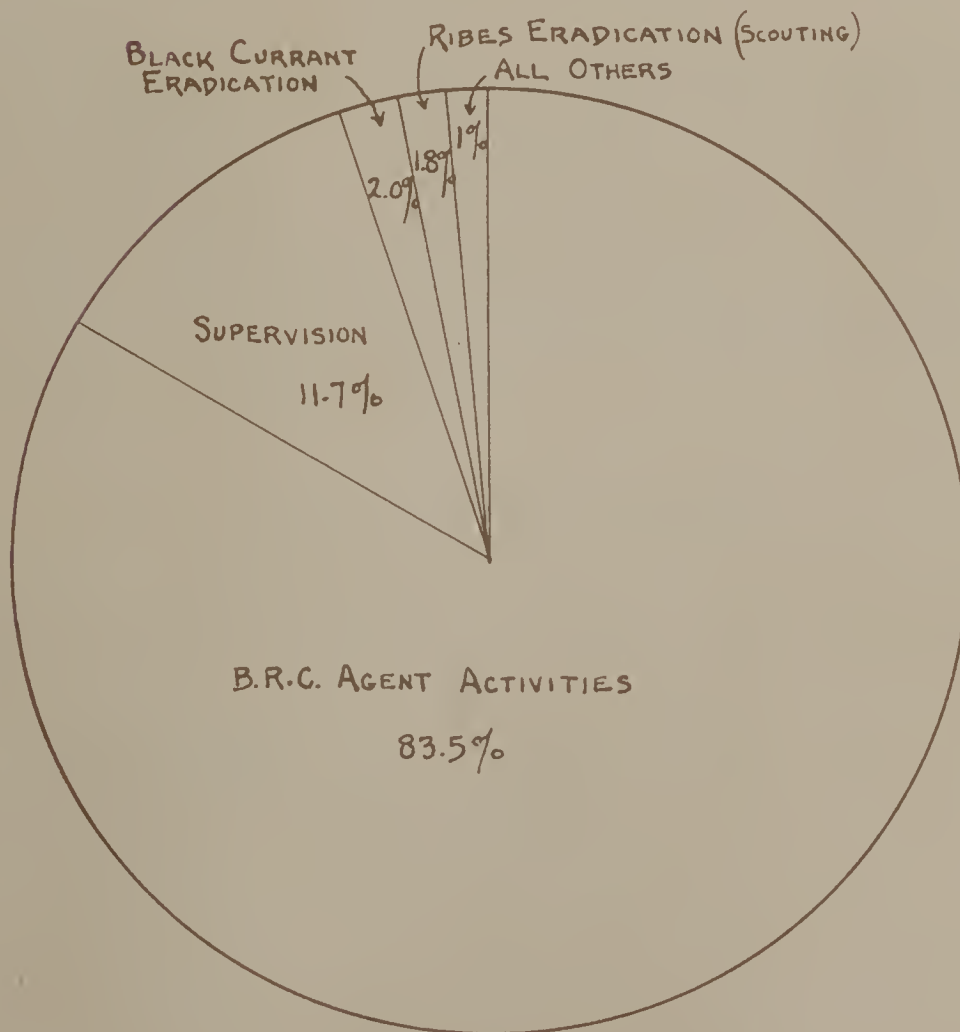
Per Cent Total State and Federal Expenditures, in the Respective Northeastern
States Paid for Each Project

State	Super- vision	BRC Agent Act.	Ribes Eradication	Erad.Assts. and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Totals
Maine	12.2	40.8	45.1	-	-	-	1.5	-	0.4	100.0
N. H.	6.73	25.13	60.74	6.83	-	0.4	0.02	-	0.5	100.0
Vt.	7.6	43.9	47.3	-	-	-	-	-	1.2	100.0
Mass.	10.9	35.2	30.0	-	21.3	-	1.7	0.6	0.3	100.0
R. I.	14.3	38.0	-	-	33.9	13.8	-	-	-	100.0
Conn.	9.3	40.6	24.0	-	9.9	5.6	5.2	-	5.4	100.0
N. Y.	1.9	25.6	48.4	10.1	1.5	9.1	2.9	0.2	0.3	100.0
Totals	6.5	30.3	46.1	5.5	4.9	4.0	1.8	0.2	0.7	100.0

STATE AND FEDERAL EXPENDITURES IN NEW ENGLAND AND NEW YORK - CALENDAR YEAR 1931. (PERCENT OF TOTAL SPENT ON EACH PROJECT)



TOTAL STATE EXPENDITURES - \$205,695.03



TOTAL FEDERAL EXPENDITURES - \$110,552.96

EXPLANATION OF STATE AND FEDERAL EXPENDITURES FOR VARIOUS
BLISTER RUST CONTROL PROJECTS IN NEW ENGLAND AND NEW YORK
DURING THE CALENDAR YEAR 1931

(Basis for project costs)

Supervision

State Expenditures

Maine and Massachusetts: Expenses for state leaders.

New Hampshire: Upkeep and maintenance of state car (except gas and oil) for state leader - state salary for permanent clerk and wages for any temporary assistants on blister rust control work at Concord office.

Vermont: Salary (\$50.00 per month) and expenses of Assistant State Forester Lockard for time spent on blister rust control work.

Connecticut: Expenses of Filley while on blister rust work - arbitrary part of salary for a permanent clerk at New Haven office (\$55.00 per month).

Rhode Island: An arbitrary amount (\$150.00) to cover cost of supervisory activities by Lewis and Stene up to June 30, 1931 - beginning July 1, 1931, this charge for supervisory activities of Lewis and Stene was discontinued and a charge of \$25.00 per month made for clerical assistance at Providence office.

New York: Clerical assistance at Albany office and expenses of men on supervisory work. State Leader McIntyre's salary and expenses are not charged against blister rust activities.

Federal Expenditures

Maine and Massachusetts: Yearly salaries of state leaders and expenses to annual conference - also in Massachusetts \$20.00 per month for clerical assistance at state office.

New Hampshire: Salary and expenses of state leader - \$45.00 per month for clerical assistance at state office.

Rhode Island and Connecticut: One-fourth of the salaries and expenses of the state leaders, including new federal automobile purchased for Riley's use in Connecticut.

B. R. C. Agent Activities

State Expenditures

All States: Cost of educational material purchased by states for use of agents.

Maine and Connecticut: Cost of temporary men while engaged in agent activities.

New York: Expenses of Agent Nichols.

Federal Expenditures

All States: Salaries and expenses of all permanent blister rust control agents (except expenses for Nichols in New York and Boomer in New Hampshire) - includes cost of 5 new federal cars purchased for agents.

New Hampshire: Salary and expenses of Simmons as attendant of special roadside demonstration.

Rhode Island and Connecticut: 3/4 of the salaries and expenses of the state leaders, including new federal automobile purchased for Riley's use in Connecticut.

Ribes Eradication

State Expenditures

All States: Wages of owners' labor, state linemen, scouts and foremen employed in pulling Ribes.

New York and Connecticut: Board and lodging costs of men in state camps.

Federal Expenditures

Maine and Connecticut: Wages of temporary agents while employed scouting for Ribes.

Vermont: Wages of federal foreman who assisted individual cooperators.

Eradication Assistants and Checkers

State Expenditures

New Hampshire: Salaries and expenses of two permanent assistants during entire year.

New York: Salaries and expenses of temporary assistants, including camp supervisor.

Black Currant Eradication

State Expenditures

Massachusetts, Rhode Island, Connecticut, and New York: Wages and expenses (if any) paid to state men engaged in eradicating Ribes nigrum when such work was conducted as a special project.

Federal Expenditures

Massachusetts, Rhode Island, and Connecticut: Wages paid temporary agents while employed on special black currant eradication project.

Field Data

State Expenditures

New Hampshire: Wages and expenses of state men assisting on chemical eradication experiments.

Rhode Island: Wages and expenses of state men on plantation inspection work.

Connecticut: Wages and expenses of state men while engaged in special studies to determine effectiveness of control and need for reProtection.

New York: Salaries and expenses of York, Snell, Littlefield, and their assistants on investigational work.

Federal Expenditures

Rhode Island: Wages of temporary agent while engaged in plantation inspection work.

Nursery Sanitation

State Expenditures

Maine: Cost of Ribes eradication work at state forest tree nursery at Orono, Maine, and a \$500.00 allotment for general nursery inspection in Maine.

New Hampshire, Massachusetts, and Connecticut: Cost of Ribes eradication work at commercial nurseries.

New York: Cost of Ribes eradication work around five state nurseries and three commercial nurseries.

Federal Expenditures

Connecticut: Wages of temporary agents while engaged on nursery sanitation work.

Ribes Compensation

State Expenditures

Massachusetts and New York: Cost to states for cultivated Ribes compensation. The Massachusetts compensation includes \$79.60 paid for bushes destroyed during 1930. There were still 6 outstanding compensation claims for bushes eradicated in 1931. These claims will be settled in the spring of 1932.

Miscellaneous

State and Federal Expenditures

All States: Cost of miscellaneous items not directly chargeable to any of the other blister rust control projects. The state expenditure in Connecticut includes purchase price of new truck.

SUMMARY OF COOPERATIVE RIBES ERADICATION WORK CONDUCTED IN
PENNSYLVANIA AND LAKE STATES DURING 1931

(Initial and Reprotection Work - Regular Control Projects and
Nursery Sanitation)

State		Pennsylvania	Michigan	Minnesota	Wisconsin	Totals
No. Individual Cooperators		87	76	24	47	234
No. Cooperating towns		-	-	-	-	-
Acreage Initial Eradication		24,016	12,252	478	3,387	40,133
Acreage reprotection		1,702	-	264	580	2,546
Total Acreage Eradicated		25,718	12,252	742	3,967	42,679
Wild Ribes Pulled		865,533	505,310	142,764	313,515	1,827,122
Cult. Ribes Pulled		703	687	406	324	2,120
Cost	State	\$10,303 .06	\$1,064.49	\$294.18	\$1,615.93	\$13,277.66
	Individuals	485.52	2,466.45	502.46	383.10	3,837.53
	Town	-	-	-	-	-
	Govt.	515.20	828.58	278.25	-	1,622.03
	Total	\$11,303.78	\$4,359.52	\$1,074.89	\$1,999.03	\$18,737.22
Cost Per Acre		.440	.356	1.45	.504	.439
Ribes Per Acre		33.7	41.2	192.4	79.0	42.8

In addition to the above, a total of 5,662 black currants were eradicated at a total cost of \$2,914.72 in connection with the special campaign to eliminate this species from the white pine region in Michigan.

ANNUAL STATISTICAL REPORT OF COOPERATIVE BLISTER RUST CONTROL WORK

State Pennsylvania and Lake StatesPeriod Year 1931

REGULAR CONTROL WORK									
DISTRICTS, States		Penna.	Mich.	Minn.	Wisc.				TOTALS FOR STATE
AGENTS' NAMES,									
Period of service this year									
INDIVIDUAL COOPERATION	No. coop. who erad.								
	Cult. Ribes only,	5	50	-	-				55
	Wild and cult. Ribes	82	26	4	44				156
	Acreage erad.,	3,624	9,552	43	1,657				14,876
	Wild Ribes erad.,	65,764	505,280	2,011	131,383				704,438
	Cult. Ribes erad.,	225	687	-	293				1,205
	Total cost								
	Individuals,	485.52	2466.45	16.00	316.95				3,284.92
	Towns, Govt.	302.80	768.35	16.00	-				1,087.15
	State,	11.60	1016.15	12.00	409.14				1,448.89
	Total,	799.92	4250.95	44.00	726.09				5,820.96
	Cost per acre,	.221	.445	1.02	.438				.391
	Ribes per acre,	18.1	52.9	46.8	79.3				47.4
TOWN COOPERATION	Town approp.								
	Number,	-	-	-	-				-
	Amount,	-	-	-	-				-
	Acreage erad.,	-	-	-	-				-
	Wild Ribes erad.,	-	-	-	-				-
	Cult. Ribes erad.,	-	-	-	-				-
	Total cost								
	Towns,	-	-	-	-				-
	State,	-	-	-	-				-
	Total,	-	-	-	-				-
	Cost per acre,	-	-	-	-				-
	Ribes per acre,	-	-	-	-				-
STATE WORK ON INDIVIDUALS' LANDS	Acreage erad.	9,465	2,660	-	16				12,141
	Wild Ribes erad.	1,315	30	-	2				1,347
	Cult. Ribes erad.	476	-	-	31				507
	Cost to State,	3.60	40.51	-	2.15				46.26
	Govt.	212.40	51.40	-	-				263.80
	TOTAL COST	216.00	91.91	-	2.15				310.06
	Cost per acre,	.022	.035	-	.134				.026
	Ribes per acre,	0.13	0.01	-	0.12				0.11
	Acreage erad.,	10,927	-	210	823				11,960
	Wild Ribes erad.,	761,879	-	16,800	61,582				840,261
PUBLIC LANDS	Cult. Ribes erad.,	2	-	-	-				2
	Total cost,								
	STATE	8963.26	-	170.60	474.04				9607.90
	GOVT	-	-	90.80	-				90.80
	TOTAL	8963.26	-	260.60	474.04				9697.90
	Cost per acre,	.820	-	1.24	.576				.811
	Ribes per acre,	69.7	-	80.0	74.8				70.3
	Acreage erad.,	24,016	12,212	253	2,496				38,977
	Wild Ribes erad.,	828,958	505,310	18,811	192,967				1,546,046
	Cult. Ribes erad.,	703	687	-	324				1,714
GRAND TOTALS	Total cost								
	Individuals,	485.52	2466.45	16.00	316.95				3,284.92
	Towns,	-	-	-	-				-
	State,	8978.46	1056.66	182.60	885.33				11,103.05
	Govt.	515.20	819.75	106.00	-				1,440.95
	Total,	9979.18	4342.86	304.60	1202.28				15,828.92
	Cost per acre,	.416	.356	1.20	.482				.406
	Ribes per acre,	34.5	41.4	74.4	77.3				39.7
	Ribes Compensation								
	No. persons paid,								
	No. bushes,								
	Amount paid,								
Est. acreage White Pine protected	Merch.,								
	Reprod.,								
	Total,								
No. acres nonpine land eliminated,									

SPECIAL CONTROL WORK

DISTRICTS,		Penna.	Mich.	Minn.	Wisc.				TOTALS FOR STATE
AGENTS' NAMES,									
NURSERY SANITATION	No. nurseries worked,	—	2	4	3				9
	Acreage examined for wild Ribes,	—	40	225	891				1156
	Wild Ribes erad.,	—	—	101,852	6,316				108,168
	Cult Ribes erad.,	—	—	403	—				403
	Total cost	Individuals,	—	392.05	66.15				458.20
		Towns, Govt.	—	8.83	114.25	—			123.08
		State,	—	7.83	78.83	33.00			119.66
		Total,	—	16.66	585.13	99.15			700.94
	Ribes compensation	No. persons paid,	—	—	?	—			?
		No. bushes,	—	—	?	—			?
		Amount paid,	—	—	?	—			?
BLACK CURRANT ERADICATION	No. towns worked,	—	75	—	—				75
	No. towns completed,	—	75	—	—				75
	No. of patches,	—	312	—	—				312
	No. bushes erad.,	—	5,662	—	—				5,662
	No. bushes not erad.,	—	—	—	—				—
	Total cost	Individuals,	—	—	—	—			—
		Towns, Govt.	—	1,348.41	—	—			1,348.41
		State,	—	1,566.31	—	—			1,566.31
		Total,	—	2,914.72	—	—			2,914.72
	Ribes compensation	No. persons paid,	—	—	—	—			—
		No. bushes,	—	—	—	—			—
		Amount paid,	—	—	—	—			—

PERSONNEL EMPLOYED ON RIBES ERADICATION WORK

CLASSES		Owners' labor	STATE LABOR					TOTAL
			Crew men	Foremen	Scouts	Erad. ass'ts	Total	
No. Men Used	Regular control work,							
	Nursery sanitation,							
	Black currant erad.,							
	Total,							

STATE AND FEDERAL EXPENDITURES FOR ALL BLISTER RUST CONTROL PROJECTS DURING CALENDAR YEAR

PROJECTS		Supervision	B.R.C. Agent Act.	Ribes eradication	Erad. ass'ts and checkers	Black currant erad.	Field data	Nursery sanitation	Ribes compensation	TOTALS
SALARIES or WAGES	State,*			—	—					
	Federal,									
	Total,									
EXPENSES	State,*									
	Federal,									
	Total,									
GRAND TOTAL										

NOTE.—In figuring cost of "REGULAR CONTROL WORK," include expenditures for the following three items: (1) the actual total amount expended by individuals, towns, and State on wages and any subsistence expenses for laborers, foremen, and scouts; (2) the value of owners' labor figured at the prevailing wage rate paid to farm labor, usually 40 cents per hour; (3) expenditures for transportation of men actually engaged in eradicating Ribes and for equipment such as picks and trail paper.

Under heading "SPECIAL CONTROL WORK," list only data for nursery sanitation and black currant eradication when these two activities were performed as special projects. If these special projects were not conducted under the direction of the district blister rust control agent, designate accordingly.

*Includes combined expenditures of individuals, towns, and State.

ANNUAL STATISTICAL REPORT OF COOPERATIVE BLISTER RUST CONTROL WORK

State Pennsylvania and Lake States

Period Year 1931

REGULAR CONTROL WORK									
DISTRICTS, States		Penna.	Mich.	Minn.	Wisc.				TOTALS FOR STATE
AGENTS' NAMES,									
Period of service this year									
INDIVIDUAL COOPERATION	No. coop. who erad.	Cult. Ribes only,	--	--	--	--			--
		Wild and cult. Ribes	--	--	16	--			16
	Acreage erad.,		--	--	264	--			264
	Wild Ribes erad.,		--	--	22,101	--			22,101
	Cult. Ribes erad.,		--	--	3	--			3
	Total cost	Individuals,	--	--	94.41	--			94.41
		Towns, Govt.	--	--	58.00	--			58.00
		State,	--	--	32.75	--			32.75
		Total,	--	--	185.16	--			185.16
	Cost per acre,		--	--	.701	--			.701
	Ribes per acre,		--	--	16.5	--			16.5
TOWN COOPERATION	Town approp.	Number,	--	--	--	--			--
		Amount,	--	--	--	--			--
	Acreage erad.,		--	--	--	--			--
	Wild Ribes erad.,		--	--	--	--			--
	Cult. Ribes erad.,		--	--	--	--			--
	Total cost	Towns,	--	--	--	--			--
		State,	--	--	--	--			--
		Total,	--	--	--	--			--
	Cost per acre,		--	--	--	--			--
	Ribes per acre,		--	--	--	--			--
STATE WORK ON INDIVIDUALS' LANDS	Acreage erad.		--	--	--	--			--
	Wild Ribes erad.		--	--	--	--			--
	Cult. Ribes erad.		--	--	--	--			--
	Cost to State,		--	--	--	--			--
			--	--	--	--			--
	Cost per acre,		--	--	--	--			--
	Ribes per acre,		--	--	--	--			--
	Acreage erad.,		947	--	--	580			1,527
	Wild Ribes erad.,		26,063	--	--	114,232			140,295
	Cult. Ribes erad.,		--	--	--	--			--
PUBLIC LANDS	Total cost, (State)		833.94	--	--	697.60			1531.54
	Cost per acre,		.881	--	--	1.20			1.00
	Ribes per acre,		27.5	--	--	197.0			91.9
	Acreage erad.,		947	--	264	580			1,791
	Wild Ribes erad.,		26,063	--	22,101	114,232			162,396
	Cult. Ribes erad.,		--	--	3	--			3
	Total cost	Individuals,	--	--	94.41	--			94.41
		Towns,	--	--	--	--			--
		State,	833.94	--	32.75	697.60			1,564.29
		Govt.	--	--	58.00	--			58.00
GRAND TOTALS	Total,		833.94	--	185.16	697.60			1,716.70
	Cost per acre,		.881	--	.701	1.20			.959
	Ribes per acre,		27.5	--	16.5	197.0			90.7
	Ribes Compensation	No. persons paid,							
		No. bushes,							
		Amount paid,							
	st. acreage White Pine protected	Merch.,							
		Reprod.,							
		Total,							
	No. acres nonpine land eliminated,								

SPECIAL CONTROL WORK

DISTRICTS, States		Penna.	Mich.	Minn.	Wisc.				TOTALS FOR STATE
AGENTS' NAMES,									
NURSERY SANITATION	No. nurseries worked,	3	—	—	—				3
	Acreage examined for wild Ribes,	755	—	—	—				755
	Wild Ribes erad.,	10,512	—	—	—				10,512
	Cult Ribes erad.,	—	—	—	—				—
	Total cost	Individuals,	—	—	—				—
		Towns,	—	—	—				—
		State,	490.66	—	—				490.66
		Total,	490.66	—	—				490.66
	Ribes compen- sation	No. persons paid,	—	—	—				—
		No. bushes,	—	—	—				—
		Amount paid,	—	—	—				—
BLACK CURRANT ERADICATION	No. towns worked,	—	—	—	—				—
	No. towns completed,	—	—	—	—				—
	No. of patches,	—	—	—	—				—
	No. bushes erad.,	—	—	—	—				—
	No. bushes not erad.,	—	—	—	—				—
	Total cost	Individuals,	—	—	—				—
		Towns,	—	—	—				—
		State,	—	—	—				—
		Total,	—	—	—				—
	Ribes compen- sation	No. persons paid,	—	—	—				—
		No. bushes,	—	—	—				—
		Amount paid,	—	—	—				—

PERSONNEL EMPLOYED ON RIBES ERADICATION WORK

CLASSES		Owners' labor	STATE LABOR					TOTAL
			Crew men	Foremen	Scouts	Erad. ass'ts	Total	
No. Men Used	Regular control work,							
	Nursery sanitation,							
	Black currant erad.,							
	— Total,							

STATE AND FEDERAL EXPENDITURES FOR ALL BLISTER RUST CONTROL PROJECTS DURING CALENDAR YEAR

PROJECTS		Supervision	B.R.C. Agent Act.	Ribes eradication	Erad. ass'ts and checkers	Black currant erad.	Field data	Nursery sanitation	Ribes compen- sation	TOTALS
SALARIES or WAGES	State,*			—	—	—	—	—	—	
	Federal,			—	—	—	—	—	—	
	Total,			—	—	—	—	—	—	
EXPENSES	State,*			—	—	—	—	—	—	
	Federal,			—	—	—	—	—	—	
	Total,			—	—	—	—	—	—	
GRAND TOTAL				—	—	—	—	—	—	

NOTE.—In figuring cost of "REGULAR CONTROL WORK," include expenditures for the following three items: (1) the actual total amount expended by individuals, towns, and State on wages and any subsistence expenses for laborers, foremen, and scouts; (2) the value of owners' labor figured at the prevailing wage rate paid to farm labor, usually 40 cents per hour; (3) expenditures for transportation of men actually engaged in eradicating Ribes and for equipment such as picks and trail paper.

Under heading "SPECIAL CONTROL WORK," list only data for nursery sanitation and black currant eradication when these two activities were performed as special projects. If these special projects were not conducted under the direction of the district blister rust control agent, designate accordingly.

*Includes combined expenditures of individuals, towns, and State.

ANNUAL STATISTICAL REPORT OF COOPERATIVE BLISTER RUST CONTROL WORK

State Pennsylvania and Lake StatesPeriod Year 1931

REGULAR CONTROL WORK

REGULAR CONTROL WORK										
DISTRICTS,-- States			Penna.	Mich.	Minn.	Wisc.			TOTALS FOR STATE	
AGENTS' NAMES,										
Period of service this year										
INDIVIDUAL COOPERATION	No. coop. who erad.	Cult. Ribes only,	5	50	-	-			55	
		Wild and cult. Ribes	82	26	20	44			172	
	Acreage erad.,		3,624	9,552	307	1,657			15,140	
	Wild Ribes erad.,		65,764	505,280	24,112	131,383			726,539	
	Cult. Ribes erad.,		225	687	3	293			1,208	
	Total cost	Individuals,	485.52	2,466.45	110.41	316.95			3,379.33	
		Towns, Govt.	302.80	768.35	74.00	-			1,145.15	
		State,	11.60	1,016.15	44.75	409.14			1,481.64	
		Total,	799.92	4,250.95	229.16	726.09			6,006.12	
	Cost per acre,		.221	.445	.746	.438			.397	
Ribes per acre,		18.1	52.9	78.5	79.3			48.0		
TOWN COOPERATION	Town approp.	Number,	-	-	-	-			-	
		Amount,	-	-	-	-			-	
	Acreage erad.,		-	-	-	-			-	
	Wild Ribes erad.,		-	-	-	-			-	
	Cult. Ribes erad.,		-	-	-	-			-	
	Total cost	Towns,	-	-	-	-			-	
		State,	-	-	-	-			-	
		Total,	-	-	-	-			-	
	Cost per acre,		-	-	-	-			-	
	Ribes per acre,		-	-	-	-			-	
STATE WORK ON INDIVIDUALS' LANDS	Acreage erad.		9,465	2,660	-	16			12,141	
	Wild Ribes erad.		1,315	30	-	2			1,347	
	Cult. Ribes erad.		476	-	-	31			507	
	Cost to State,		3.60	40.51	-	2.15			46.26	
	" " GOVT.		212.40	51.40	-	-			263.80	
	TOTAL COST		216.00	91.91	-	2.15			310.06	
	Cost per acre,		.022	.035	-	.134			.026	
	Ribes per acre,		0.13	0.01	-	0.12			0.11	
	PUBLIC LANDS	Acreage erad.,		11,874	-	210	1,403			13,487
		Wild Ribes erad.,		787,942	-	16,800	175,814			980,556
Cult. Ribes erad.,		2	-	-	-			2		
Cost		STATE	9797.20	-	170.60	1171.64			11,139.44	
		GOVT	-	-	90.00	-			90.00	
Total cost,		9797.20	-	260.60	1171.64			11,229.44		
Cost per acre,		.825	-	1.24	.835			.833		
Ribes per acre,		66.4	-	80.0	125.3			72.7		
GRAND TOTALS		Acreage erad.,		24,963	12,212	517	3,076			40,768
		Wild Ribes erad.,		855,021	505,310	40,912	307,199			1,708,442
	Cult. Ribes erad.,		703	687	3	324			1,717	
	Total cost	Individuals,	485.52	2,466.45	110.41	316.95			3,379.33	
		Towns,	-	-	-	-			-	
		State,	9,812.40	1,056.66	215.35	1582.93			12,667.34	
		Govt.	515.20	819.75	164.00	-			1,498.95	
	Total,		10813.12	4,342.86	489.76	1899.88			17,545.62	
	Cost per acre,		.433	.356	.947	.618			.430	
	Ribes per acre,		34.3	41.4	79.1	99.9			41.9	
Ribes Compensation	No. persons paid,		-	-	-	-			-	
	No. bushes,		-	-	-	-			-	
	Amount paid,		-	-	-	-			-	
Est. acreage White Pine protected	Merch.,									
	Reprod.,									
	Total,									
No. acres nonpine land eliminated,										

SPECIAL CONTROL WORK

DISTRICTS, States		Penna.	Mich.	Minn.	Wisc.				TOTALS FOR STATE
AGENTS' NAMES,									
NURSERY SANITATION	No. nurseries worked,	3	2	4	3				12
	Acreage examined for wild Ribes,	755	40	225	891				1,911
	Wild Ribes erad.,	10,512	-	101,852	6,316				118,680
	Cult Ribes erad.,	-	-	403	-				403
	Total cost	Individuals,	-	392.05	66.15				458.20
		Towns, Govt.	-	8.83	114.25				123.08
		State,	490.66	7.83	78.83	33.00			610.32
		Total,	490.66	16.66	585.13	99.15			1,191.60
	Ribes compensation	No. persons paid,	-	-	-				-
		No. bushes,	-	-	-				-
		Amount paid,	-	-	-				-
BLACK CURRANT ERADICATION	No. towns worked,	-	75	-	-				75
	No. towns completed,	-	75	-	-				75
	No. of patches,	-	312	-	-				312
	No. bushes erad.,	-	5,662	-	-				5,662
	No. bushes not erad.,	-	-	-	-				-
	Total cost	Individuals,	-	-	-				-
		Towns, Govt.	-	1348.41	-	-			1,348.41
		State,	-	1566.31	-	-			1,566.31
		Total,	-	2914.72	-	-			2,914.72
	Ribes compensation	No. persons paid,	-	-	-				-
		No. bushes,	-	-	-				-
		Amount paid,	-	-	-				-

PERSONNEL EMPLOYED ON RIBES ERADICATION WORK

CLASSES		Owners' labor	STATE LABOR					TOTAL
			Crew men	Foremen	Scouts	Erad. ass'ts	Total	
No. Men Used	Regular control work,							
	Nursery sanitation,							
	Black currant erad.,							
	Total,							

STATE AND FEDERAL EXPENDITURES FOR ALL BLISTER RUST CONTROL PROJECTS DURING CALENDAR YEAR

PROJECTS		Supervision	B.R.C. Agent Act.	Ribes eradication	Erad. ass'ts and checkers	Black currant erad.	Field data	Nursery sanitation	Ribes compensation	TOTALS
SALARIES or WAGES	State,*									
	Federal,									
	Total,									
EXPENSES	State,*									
	Federal,									
	Total,									
GRAND TOTAL										

NOTE.—In figuring cost of "REGULAR CONTROL WORK," include expenditures for the following three items: (1) the actual total amount expended by individuals, towns, and State on wages and any subsistence expenses for laborers, foremen, and scouts; (2) the value of owners' labor figured at the prevailing wage rate paid to farm labor, usually 40 cents per hour; (3) expenditures for transportation of men actually engaged in eradicating Ribes and for equipment such as picks and trail paper.

Under heading "SPECIAL CONTROL WORK," list only data for nursery sanitation and black currant eradication when these two activities were performed as special projects. If these special projects were not conducted under the direction of the district blister rust control agent, designate accordingly.

* Includes combined expenditures of individuals, towns, and State.

TOTAL STATE AND FEDERAL EXPENDITURES, BY PROJECTS, IN LAKE
STATES, PENNSYLVANIA, AND NEW JERSEY DURING CALENDAR YEAR 1931

Total State Expenditures, by Projects, in Lake States, Pennsylvania, and New Jersey
During Calendar Year 1931

State	Super- vision	BRC Agent Activities	Ribes Eradication	Erad. Assists. and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Total
Mich.	\$804.28	\$2,128.76	\$3,523.11	-	\$1,566.31	217.47	\$ 7.83	-	\$488.65	\$8,736.41
Minn.	1,034.77	285.43	325.76	-	-	343.27	1,070.88	110.00	-	3,170.11
N. J.	397.73	1,193.17	-	-	-	-	-	-	-	1,590.90
Penn.	2,152.51	2,226.32	10,297.92	-	-	1,544.07	490.66	-	200.00	16,911.48
Wis.	81.28	243.82	1,899.88	1,256.83	-	-	99.15	-	-	3,580.96
Totals	\$4,470.57	\$6,077.50	\$16,046.67	\$1,256.83	\$1,566.31	\$2,104.81	\$1,668.52	\$110.00	\$688.65	\$33,989.86

Per Cent of Total State Expenditures, in Respective Lake States, Pennsylvania, and New Jersey
Spent for Each Project

State	Super- vision	BRC Agent Activities	Ribes Eradication	Erad. Assists. and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Total
Mich.	9.2	24.4	40.3	-	17.9	2.5	0.1	-	5.6	100.0
Minn.	32.0	9.0	10.3	-	-	10.8	33.8	3.5	-	100.0
N. J.	25.0	75.0	-	-	-	-	-	-	-	100.0
Penn.	12.7	13.2	60.9	-	-	9.1	2.9	-	1.2	100.0
Wis.	2.3	6.8	53.0	35.1	-	-	2.8	-	-	100.0
Totals	13.2	17.9	47.2	3.7	4.6	6.2	4.9	0.3	2.0	100.0

Total Federal Expenditures, By Projects, in Lake States, Pennsylvania and New Jersey
During Calendar Year 1931

State	Super- vision	BRC Agent Activities	Ribes Erad- ication	Erad.Assists. and Checkers	Black Current Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Total
Mich.	466.14	4,581.32	819.75	-	1,348.41	391.88	8.83	-	16.86	7,633.19
Minn.	646.15	2,168.81	164.00	-	-	90.00	114.25	-	73.36	3,256.57
N. J.	300.00	900.00	-	-	-	-	-	-	-	1,200.00
Penn.	678.59	8,049.09	515.20	-	-	-	-	-	17.79	9,260.67
Wisc.	849.15	3,726.82	-	-	-	-	-	-	11.28	4,587.25
Totals	2,940.03	19,426.04	1,498.95	-	1,348.41	481.88	123.08	-	119.29	25,937.68

Percent of Total Federal Expenditures in Respective Lake States, Pennsylvania and New Jersey
Spent For Each Project

State	Super- vision	BRC Agent Activities	Ribes Erad- ication	Erad.Assists. and Checkers	Black Current Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Total
Mich.	6.1	60.0	10.8	-	17.7	5.1	0.1	-	0.2	100.0
Minn.	19.8	66.6	5.0	-	-	2.8	3.5	-	2.3	100.0
N. J.	25.0	75.0	-	-	-	-	-	-	-	100.0
Penn.	7.3	86.9	5.6	-	-	-	-	-	0.2	100.0
Wisc.	18.5	81.2	-	-	-	-	-	-	0.3	100.0
Totals	11.3	74.9	5.8	-	5.2	1.9	0.5	-	0.4	100.0

Total State and Federal Expenditures, By Projects, in Lake States, Pennsylvania, and New Jersey During Calendar Year 1931.

State	Super- vision	BRC Agent Activities	Ribes Erad- ication	Erad. Assists. and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Totals
Mich.	1,270.42	6,710.08	4,342.86	-	2,914.72	609.35	16.66	-	505.51	16,369.60
Minn.	1,680.92	2,454.24	489.76	-	-	433.27	1,185.13	110.00	73.36	6,426.68
N. J.	697.73	2,093.17	-	-	-	-	-	-	-	2,790.90
Penn.	2,831.10	10,275.41	10,813.12	-	-	1,544.07	490.66	-	217.79	26,172.15
Wisc.	930.43	3,970.64	1,899.88	1,256.83	-	-	99.15	-	11.28	8,168.21
Totals	7,410.60	25,503.54	17,545.62	1,256.83	2,914.72	2,586.69	1,791.60	110.00	807.94	59,927.54

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Percent of Total State and Federal Expenditures, in Respective Lake States, Pennsylvania, and New Jersey, Spent for Each Project

State	Super- vision	BRC Agent Activities	Ribes Erad- ication	Erad. Assists. and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Totals
Mich.	7.8	41.0	26.5	-	17.8	3.7	0.1	-	3.1	100.0
Minn.	26.2	38.2	7.6	-	-	6.7	18.5	1.7	1.1	100.0
N. J.	25.0	75.0	-	-	-	-	-	-	-	100.0
Penn.	10.8	39.3	41.3	-	-	5.9	1.9	-	0.8	100.0
Wisc.	11.4	48.6	23.3	15.4	-	-	1.2	-	0.1	100.0
Totals	12.4	42.6	29.3	2.1	4.8	4.3	3.0	0.2	1.3	100.0

EXPLANATION OF STATE AND FEDERAL EXPENDITURES FOR VARIOUS
BLISTER RUST CONTROL PROJECTS IN LAKE STATES, PENNSYLVANIA,
AND NEW JERSEY DURING THE CALENDAR YEAR 1931

(Basis for project costs)

Supervision

State Expenditures

Michigan: One-third state leader's expenses - salary of permanent stenographer at Lansing Office.

Minnesota: Part of state leader's expenses - \$25 per month for part time services of stenographer at St. Paul Office - an arbitrary amount to cover cost of supervisory activities of Konzert and Oppel (\$680).

New Jersey: One-quarter of state leader's expenses and \$22.50 per month for one-quarter of his state salary.

Pennsylvania: State leader's expenses and miscellaneous expenses at Brockway office including clerk at \$100 per month up to November 15th.

Wisconsin: One-quarter of state leader's expenses.

Federal Expenditures

Minnesota, Pennsylvania, and Wisconsin: One-fourth of salary and any special federal expenses paid state leaders including new automobiles purchased for state leaders in Minnesota and Wisconsin.

Michigan: One-third of salary and any special federal expenses of state leader. Expenses of Mandenberg while on blister rust work.

New Jersey: \$25 per month for one-fourth of state leader's federal salary.

B. R. C. Agent Activities

State Expenditures

All States: Cost of educational material purchased by states for use of agents.

Michigan: Expenses of blister rust control agents and two-thirds of state leader's expenses.

Minnesota: Part of state leader's expenses and cost of temporary state men doing agent work.

New Jersey: Three-quarters of state leader's expenses and \$67.50 per month for three-fourths of his state salary.

Pennsylvania: Salaries and expenses of temporary state men doing agent work.

Wisconsin: Three-quarters of state leader's expenses.

Federal Expenditures

Minnesota, Pennsylvania, and Wisconsin: Three-fourths of salaries and any special federal expenses of state leaders, including new automobiles purchased for state leaders in Minnesota and Wisconsin.- salary and expenses of Ninman while assisting on cooperative work in Wisconsin. Salaries and expenses of permanent and temporary agents in Pennsylvania, including cost of new automobile for Gachenbach.

Michigan: Two-thirds of salary and any special federal expenses of state leader. Salaries and expenses of two permanent agents and temporary agents during summer months.

New Jersey: \$75 per month for three-fourths of state leader's federal salary.

Ribes Eradication

State Expenditures

All States: Wages of owners' labor, state linemen, scouts and foremen employed in pulling Ribes.

Federal Expenditures

Michigan: Cost of temporary agents' time while engaged in eradication work.

Minnesota: Cost of state leader's time while engaged in eradication work.

Pennsylvania: Cost of temporary agents' time on scout work.

Eradication Assistants and Checkers

State Expenditures

Wisconsin: Salary and expenses of eradication assistants to state leader while engaged in work not directly chargeable to "Ribes Eradication".

Black Currant Eradication

State Expenditures

Michigan: Wages and expenses of men while on special black currant eradication project.

Federal Expenditures

Michigan: Cost of federal agents while engaged on special black currant eradication project.

Field Data

State Expenditures

Michigan: Wages and expenses of state men and expenses of federal agents on pre-eradication survey work.

Minnesota: Expenses of state leader and salary and expenses of temporary state agent while on this project.

Pennsylvania: Salary and expenses of state men on mapping and classifying pine areas.

Federal Expenditures

Michigan: Salaries of Michigan agents and federal men on pre-eradication survey work in that state.

Minnesota: Salary and expenses of state leader and temporary agents while on this project.

Nursery Sanitation

State Expenditures

Michigan: Cost of Ribes eradication work at State College nursery and one commercial nursery.

Minnesota: Cost of Ribes eradication work around four nurseries - part of salary and expenses of state nursery inspector.

Pennsylvania: Cost of Ribes reeradication work around three state nurseries.

Wisconsin: Cost of Ribes eradication work around three nurseries.

Federal Expenditures

Michigan: Part of cost of Ribes eradication work around one commercial nursery and Michigan State College nursery.

Minnesota: Part of cost of Ribes eradication work around four nurseries.

Ribes Compensation

State Expenditures

Minnesota: Cost to state for cultivated Ribes compensation.

Miscellaneous

State Expenditures

Michigan and Pennsylvania: Cost of miscellaneous supplies and materials not chargeable to any of the other blister rust control projects.

Federal Expenditures

All States except New Jersey: Miscellaneous expenses not directly chargeable to any of the other blister rust control projects.

SUMMARY OF FEDERAL RIBES ERADICATION PROJECTS ON PUBLIC LANDS
IN EASTERN STATES DURING 1931

Location	Acreage Cleared Of Ribes	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Acadia National Park	1,900	75,381	-	\$2,936.51	\$1.55	39.6
Monongahela National Forest	534	1,349	1	43.38	.081	2.5
Shenandoah National Forest	1,913	10,198	-	217.19	.114	5.3
Allegheny National Forest	461	13,321	-	213.39	.463	28.9
Totals	4,808	100,249	1	\$3,410.47	.709	20.9

All of this work was conducted as strictly Federal projects; the Office of Blister Rust Control furnishing the supervision in each instance. Detailed reports have already been submitted for each of these projects.

SUMMARY OF ALL RIBES ERADICATION WORK IN EASTERN
STATES DURING 1931

(Initial and Reprotection - Regular Control
Projects and Nursery Sanitation)

		Cooperative Work In New England and New York	Cooperative Work In Pennsylvania And Lake States	Federal Control Projects	Total All Eradication Work
No. Individual Cooperators	Cult. Ribes Erad. Only	753	55	-	808
	Wild And Cult. Ribes Erad.	1,099	179	-	1,278
No. Cooperating Towns		175	0	-	175
Acreage initial eradication		431,699	40,133	3,467	475,299
Acreage reprotection		148,337	2,546	1,341	152,224
Total acreage eradicated		580,036	42,679	4,808	627,523
Wild Ribes pulled		6,252,129	1,827,122	100,249	8,179,500
Cult. Ribes pulled		22,416	2,120	1	24,537
Cost	States	80,696.74	13,277.66	-	93,974.40
	Individuals	20,444.82	3,837.53	-	24,282.35
	Towns	47,455.36	0	-	47,455.36
	Govt.	2,528.73	1,622.03	3,410.47	7,561.23
	Total	151,125.65	18,737.22	3,410.47	173,273.34
Cost per acre		.261	.439	.709	.276
Ribes per acre		10.8	42.8	20.9	13.0

SUMMARY, BY STATES, OF COOPERATIVE
BLISTER RUST CONTROL ACTIVITIES IN THE NORTHEASTERN
AND LAKE STATES DURING THE PERIOD 1918 TO 1931, INCLUSIVE.

SUMMARY, BY STATES, OF COOPERATIVE ELISTER RUST CONTROL ACTIVITIES IN THE NORTHEASTERN AND LAKE STATES DURING THE PERIOD 1918 - 1931, INCLUSIVE.

MAINE

Policy: Prior to 1931, the state cooperated with towns and individuals in Ribes eradication, by furnishing scouts to systematically examine town control areas to determine the Ribes concentrations, which were eradicated by individual owners, working under the supervision of town foremen paid from town funds. The Ribes concentrations covered only about 15 percent of the control areas, consequently the Ribes on 85 percent of the total acreage were eradicated by the scouts. However, the bushes pulled by these men represented less than one percent of the total number destroyed. A new state policy was inaugurated in 1931 whereby the eradication work was performed on the township basis, as in New Hampshire, the state paying one-third of the total costs.

Acreage of Pine: Pure, 589,280 acres; mixed, 1,043,173 acres; pine restocking in types other than pine, 976,458 acres; total, 2,608,911 acres.

<u>Cooperation:</u>	No.	Individual	No. Town	Town Money
<u>Period</u>	<u>Individuals</u>	<u>Expenditures</u>	<u>Appropriations</u>	<u>Expended</u>
1918-1921	30	\$1,163.07	0	0
1922-1931	11,017	78,640.80	452	\$76,141.17
Totals	11,047	\$79,803.87	452	\$76,141.17

<u>Ribes Eradication*:</u>			<u>Ribes Pulled</u>		<u>Total</u>	<u>Cost</u>
(Initial and Re-protection)	<u>Period</u>	<u>Acreage</u>	<u>Wild</u>	<u>Cult</u>	<u>Cost</u>	<u>Per Acre</u>
	1918-1921	180,630	658,729	1,579	\$19,708.14	\$.109
	1922-1931	2,515,232	17,878,280	112,807	194,833.73	.077
	Totals	2,695,862	18,537,009	114,386	\$214,514.87	\$.080

In Addition On						
Acadia National						
Park	1929-1931	5,810	389,695	-	\$8,839.33	\$1.52

*Eradication costs based on the value of owners' labor figured at 40 cents per hour and on the actual cost of paid laborers, town foremen, and scouts. The cost of the latter is only for time actually spent in scouting for Ribes.

Cultivated Ribes Compensation - 1922-1931: None.

Reprotection: The above acreage includes 7,557 acres reworked since 1922.

Public Forests: There are no state forests in Maine. In 1930, a state park area was acquired on Mt. Katahdin. Control work was begun during 1929 and continued during 1930 and 1931 on the Acadia National Park at Mt. Desert Island, Maine. According to present plans, based on a pre-eradication

1. The first part of the document is a letter from the President of the United States to the Congress, dated January 3, 1862. It is a very important document, as it contains the President's views on the state of the Union and the progress of the war.

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survey, it will take at least one year to complete the necessary initial eradication work on this National Park.

Plantations: Protected in conjunction with general control work - compared with other states, there are very few white pine plantations in Maine.

Nursery Sanitation: Only a few pine growing nurseries in the state - Initial control work has been completed around all of them. During 1929, the Western Maine Forest Nursery at Fryeburg was granted a pine shipping permit under Federal Quarantine #63. This permit was revoked in 1931. It is expected this nursery will again qualify in 1932. In 1930, the environs of the Cupsuptic Nursery at Oquossoc, Maine, owned by the Brown Company, were eradicated of Ribes for a distance of 1500 feet. A total of 101,114 wild Ribes were pulled from 126 acres, or 802 bushes per acre. Considerable pine infection was found in this nursery, and some of the diseased stock was unintentionally shipped to Rhode Island. The Brown Company has decided to discontinue the growing of white pine at this nursery and will select a suitable site for growing such trees near Berlin, N. H. The white pines now in the Cupsuptic Nursery will be destroyed or planted on lands owned by the Brown Company. None of the stock will be sold. The initial eradication of Ribes was completed around the state forest tree nursery at Orono during 1931. A total of 2,402 wild Ribes and 22 cultivated bushes were destroyed on 80 acres at a cost of \$52.20.

Ribes nigrum: The control policy in Maine requires the destruction of all cultivated Ribes in white pine areas. Therefore, black currants are eradicated in connection with the regular town control projects. It will, however, be necessary to make special arrangements for eliminating Ribes nigrum outside the agent districts. Many Ribes americanum are cultivated in Maine, but apparently few Ribes nigrum.

Surveys: During 1920 and 1921, the white pine types were mapped in several towns in Maine - Briscoe had maps and a report prepared of this work - maps used as a basis for control work and as an estimate of pine values. Strip line infection survey made by Frost in 1920 - the pines on rod wide strips totalling 38.5 miles in length were examined - a total of 7046 pines were inspected, and 6.3% were found infected - 11 plots, totalling 2.7 acres, were laid out adjacent to the strips, 14.4% of the 970 pines in these plots were diseased - data used for informational purposes. Epidemiology survey made during 1926, by agents and Hirt, of white pine and other forest types, Ribes and infection conditions - maps and summaries prepared at Boston Office.

Infection: General in the commercial range of white pine - based on town units in this region, the percentage of diseased pine ranges from 1 to 10 percent of the total amount of pine - most of the infection has originated since 1918, and is especially abundant in southwestern Maine, notably in Lincoln County - the oldest infection is located at Kittery Point, apparently originated in 1897 from cultivated black currants imported from England. A particularly heavy wave of infection occurred in unprotected areas during 1925.

Investigations: Demonstration control areas at Kittery Point and Brunswick - very little data on these studies available. Infection and effectiveness of control study made by Posey at Kittery Point - report published. Many pine damage plots laid out by agents - used for demonstration purposes - infection data summarized and used by agents in informational work. - Effectiveness of control studies made by agents during 1929. These data were summarized at the Boston Office, and copies of the summaries sent to the state leader and Washington Office.

Future Work: Complete initial control work on 286,294 acres in agents' districts (basis: estimates by agents of acreage still needing initial eradication in each town) - and where necessary on 411,871 acres outside of agents' districts, mostly mixed pine, east of Penobscot River. Re-examination of initial control areas which have not been ~~reprotected~~, 2,680,748 acres; estimate 50% or 1,340,374 acres will need intensive reworking.

NEW HAMPSHIRE

Policy: The state cooperates primarily with towns, paying 20 percent of the total costs of the town projects. The control work is performed by state crews (paid from state and town funds) working systematically definite town blocks irrespective of property lines. Some cooperation is also obtained from individual owners. The state assists such persons by paying 20 percent of the costs of control work. Because many of the backward towns had not cooperated, the state legislature passed a law in 1929 requiring towns to appropriate for blister rust control, amounts not to exceed \$400 in any one year, provided the state forester and the governor and his council demanded such action. Compulsory measures were applied for the first time in 40 towns during 1930. In 1931, the state law was applied in 30 towns which did not cooperate and in 10 additional towns where small voluntary appropriations were made.

Acreage of pine: Pure, 811,751 acres; mixed, 574,805 acres; pine restocking in types other than pine, 157,477 acres; total 1,544,033 acres. In addition, there is a large acreage of mixed growth containing pine stocking of less than 20 percent.

<u>Cooperation:</u>		No.	Individual	No. Town	Town Money
	<u>Period</u>	<u>Individuals</u>	<u>Expenditures</u>	<u>Appropriations</u>	<u>Expended</u>
	1918-1921	142	\$ 8,097.56	162	\$25,056.35
	1929-1931	521	38,583.58	888	313,275.99
	Totals	663	\$46,681.14	1050	\$338,332.34

<u>Ribes Eradication:</u>		<u>Ribes Pulled</u>		<u>Total</u>	<u>Cost</u>	
(Initial and Re- protection)	<u>Period</u>	<u>Acreage</u>	<u>Wild</u>	<u>Cult.</u>	<u>Cost*</u>	<u>Per Acre</u>
	1918-1921	571,625	6,335,690	61,517	\$116,739.79	\$.204
	1922-1931	2,356,596	28,638,142	81,313	444,695.26	.189
	Totals	2,928,221	34,973,832	142,830	\$561,435.05	\$.192

In Addition on						
White Mt. National						
Forest	1924-1927	5,967	138,211	-	\$2,157.97	\$.362

*Eradication costs based on total cost of owners' labor, state labor, scouts, and foremen.

Cultivated Ribes Compensation: - 1922-1931: Number persons paid compensation - 23; total number bushes paid for - 570; total amount paid in reimbursement - \$129.47.

Reprotection: The above acreage includes 363,309 acres reworked since 1922. This acreage represents 51.7% of all re-protection work that has been performed in New England and New York.

Public Forests: Initial control work completed in all pine areas of state and national forests. A thorough inspection during 1928 of control areas on the National Forest showed reProtection work would not be needed at least for a few years.

Plantations: Protection secured in conjunction with town control projects. During 1927, the agents made special inspection of 89 plantations, containing 750,000 trees, in order to determine their condition. A special card record was kept for each plantation, and where possible, the owners were interviewed. In conjunction with this work, 61 native stands, containing 5020 acres, were located upon which the owners are practicing forestry.

Nursery sanitation: The state nursery and the two commercial pine growing nurseries in the state have conducted initial and reProtection work around their properties for several years. In spite of this, considerable pine infection was found in the Keene Nursery during 1928. As a result, this nursery destroyed 30,000 white pine transplants and also arranged for reinspection of the nursery and environs. A single pine infection was also discovered in the state nursery during 1928. This nursery and its environs were thoroughly reexamined for Ribes in 1929 and 1930. ReProtection work was conducted around one commercial nursery (Fryeburg) during 1931.

Ribes nigrum: The town control policy in New Hampshire systematically eliminates cultivated Ribes from all white pine regions; therefore, no special campaign is needed to eradicate black currants. Most of the initial eradication work has been completed in the section of the state where the greater portion of black currants existed.

Surveys: Because of the general distribution of white pine, a special mapping of such areas is not necessary, especially as the recent epidemiology study gave town information on white pine and other forest types, Ribes, and infection conditions. During 1919, detailed forest type maps were made of the towns of Dover and Kensington - This work developed effective methods of mapping and estimating, and the data were used also for control work and informational purposes. Three years ago, the State Forestry Department completed a forest resource survey, which showed 50 per cent of the wood products in New Hampshire were made of white pine. The annual cut of this species varies from 55 to 65 per cent of the total lumber cut in the state. Strip line infection surveys were made in 1920 - the pines on rod wide strips, totaling 54.5 miles in length, were examined - a total of 9919 pines were inspected, and 13 per cent were found infected - 213 plots, totaling 49.1 acres, were laid out adjacent to the strips; 51.5 per cent of the 7014 pines in these plots were diseased. During 1928, a survey was made in 69 backward towns to locate and map the minimum control area, which should be

cleared of Ribes to protect the pine. Partly as a result of the facts obtained by this survey, over 30 percent of these towns appropriated for control work in 1929. Similar work was conducted in other towns during the fall of 1931. It resulted in complete data being secured, by township units, on the remaining acreage still needing initial protection.

Infection: General in commercial pine range, especially severe in northern Connecticut River Valley region - based on town units, the percentage of diseased pine ranges from 1 to 30 per cent of the total amount of pine. Also, see strip line data given under "Blister Rust Surveys". Two especially heavy infection areas were located in unprotected tracts during the spring of 1929; one in the vicinity of Moose Mountain in the town of Hanover, and the other along the upper waters of Underwood Brook situated in the northeastern part of Acworth. Both of these infection areas cover a large territory. An acre plot, examined in the Acworth area, showed that 94 out of every 100 trees were fatally infected with the disease. In many instances, the pines had been so seriously infected that every branch contained several cankers. Several new areas of heavy pine infection were located during 1931, an especially impressive one being found in the town of Gilmanton.

Investigations: Demonstration control areas established at Conway and Wolfeboro - latter area re-checked during 1927 - Detailed infection studies made by Endersbee at Hooksett, Hampstead, Sunapee, and Littleton - (reports submitted); by Posey, at Deerfield and Lisbon - (no report); by Richards, at Temple - (preliminary report only). Many damage and demonstration plots laid out by agents - used for informational purposes. Ribes regrowth study made by Newman at Newmarket - (no report submitted). During 1929, effectiveness of control studies were made by the agents in 34 New Hampshire towns. These data were summarized at the Boston Office, and copies of the summaries sent to the state leader and Washington Office to be used for informational purposes.

Office: Maps and records show control work by years - however, most of the early detailed records, by blocks, have been lost or were kept in such poor shape as to be of little value - data since 1922 O.K.

Future Work: Complete initial Ribes eradication 582,666 acres, (basis: revised estimates in 1931 by agents of total acreage to be worked in each town - including both pine areas and protection strips) - Re-examination of initial control areas that have not already been reworked, 2,201,603 acres; estimate 50 percent, or 1,100,801 acres, will need to be reworked by crew methods.

VERMONT

Policy: State cooperation with individual owners, who pay all eradication costs, except excess labor charges for state foremen. In few instances, town money has been obtained to pay the excess labor costs.

Acreage of pine: Pure, 103,376 acres; mixed, 238,562 acres; pine restocking in types other than pine, 225,146 acres; total, 567,084 acres.

<u>Cooperation:</u>	<u>No.</u>	<u>Individual</u>	<u>No. Town</u>	<u>Town Money</u>
<u>Period</u>	<u>Individuals</u>	<u>Expenditures</u>	<u>Appropriations</u>	<u>Expended</u>
1918-1921	61	\$4,021.11	0	0
1922-1931	1,992	62,815.95	11	548.21
Totals	2,053	\$66,837.06	11	548.21

<u>Ribes Eradication:</u>			<u>Ribes Pulled</u>		<u>Total</u>	<u>Cost</u>
<u>(Initial and Re-</u>	<u>Period</u>	<u>Acreage</u>	<u>Wild</u>	<u>Cult.</u>	<u>Cost</u>	<u>Per Acre</u>
<u>protection)</u>	1918-1921	17,978	272,143	282	\$14,252.51	\$.793
	1922-1931	138,166	1,932,817	5885	75,001.33	.399
	Totals	206,144	2,204,960	6167	\$89,253.84	\$.433

(Eradication costs based on the value of owners' labor and on the actual cost of hired laborers and foremen - No scouts employed)

Cultivated Ribes Compensation, 1922-1931: Number persons paid compensation - 121; total number bushes paid for - 1522; total amount paid in reimbursement - \$778.66.

Reprotection: The above acreage includes 26,484 acres reworked since 1922.

State Forests: Initial control work completed on all the principal pine areas of the state forests, except new additions.

Plantations: State office has fairly complete record of plantations. The agents are supplied with an annual list showing distribution of white pine stock from state nurseries. The plantings in the agents' districts are worked in conjunction with the regular control program. Special arrangements will be needed to protect plantations outside the agent districts.

Nursery sanitation: Exclusive of state nursery, which has been protected from blister rust, there are no nurseries growing white pine where sanitation measures are necessary. This nursery has been given a permit to ship white pines interstate under regulations specified in federal quarantine 63.

Ribes Nigrum: A systematic black currant survey was begun in the agents' districts during the fall of 1928 and continued during 1929. Such work has been completed in 20 towns and partially finished in 3 additional towns. A total of 224 *Ribes nigrum* were located and 183 were destroyed.

Surveys: (1) White pine areas of state - data suitably recorded on maps for each agent's use. (2) Strip line infection survey made in 1920. The pines on rod wide strips totalling 28 miles in length were examined - a total of 4002 pines were inspected and 3.1% found diseased. (3) Production, value, and use of white pine and other woods - data summarized for entire state, and published in bulletin form. (4) Epidemiology survey of white pine and other forest types, *Ribes* and infection conditions made during 1926. Maps and summaries prepared at Boston Office.

Infection: General throughout the commercial pine range of state, being especially severe in northern Connecticut River Valley region - based on town units, the percent of diseased pine ranges from 1-30 percent of the total amount of pine - also, see strip line data under "Surveys". Considerable new infection occurred in unprotected areas during 1928.

Investigations: Demonstration control areas at Thetford and Fairlee, Vermont - preliminary reports submitted - no follow up work done. *Ribes* regrowth studies made by Merrill, and reported at 1927 annual conference. Blister rust damage study of merchantable pine made by Filler at Waterford, Vermont - report being prepared. During 1927, six quarter acre infection plots laid out by agents. Also, in cooperation with the extension forester, six permanent demonstration plots were established to show white pine thinning and protection. Seven additional demonstration plots in six towns were laid out in 1928. During the fall of 1928 and spring of 1929, pine infection studies were made by the agents in 14 Vermont towns to determine the effectiveness of the control work. These data were summarized at the Boston Office and copies of the summaries sent to the Forestry Commissioner and to the Washington Office to be used for informational purposes.

Office Records: Maps and card records showing pine location, control areas, plantations, and infection, are in good shape.

Future Work: Complete initial *Ribes* eradication 119,867 acres - (basis: estimates by agents of acreage remaining to be done in each town, including both pine areas and protection strips - in areas outside the agents' districts, acreage remaining to be worked based on pine acreage (pure and mixed) plus an additional one-fourth acreage for protection strips minus acreage initially cleared of *Ribes*).

Reexamination of initial control areas which have not been reeradicated of *Ribes*, 153,176 acres; estimate 50 per cent, or 76,588 acres, will need intensive working.

MASSACHUSETTS

Policy: Cooperation with individuals - state scouts used to examine town areas and to denote sections requiring intensive control work, which will be done by pine owners, under the direction of state foremen.

Acreage of pine: Pure, 450,799 acres; mixed, 337,031 acres; pine re-stocking in types other than pine, 170,734 acres; total, 958,564 acres.

<u>Cooperation:</u>	No.	Individual	No. Town	Town Money
Period	Individuals	Expenditures	Appropriations	Expended
1918-1921	81	\$5,886.22	4	\$1,700.00
1922-1931	15,865	71,473.03	0	0
Totals	15,946	\$77,359.25	4	\$1,700.00

<u>Ribes Eradication:</u>			<u>Ribes Pulled</u>		<u>Total</u>	<u>Cost</u>
(Initial and Re-protection)	Period	Acreage	Wild	Cult.	Cost	Per Acre
	1918-1921	81,877	2,414,873	10,345	44,674.90	\$.546
	1922-1931	1,855,795	10,774,180	225,394	\$239,791.03	.129
	Totals	1,937,672	13,189,053	235,739	\$284,466.03	\$.147

(Eradication costs based on total cost of owners' labor, state scouts and foremen)

Cultivated Ribes Compensation, 1922-1931: Number persons paid compensation - 356; total number bushes paid for - 21,898; total amount paid in reimbursement - \$7,818.10.

Reprotection: The above acreage includes 190,942 acres reworked since 1922. This reprotected area represents 27.2% of all such work performed in New England and New York since 1922.

State Forests: Initial control work has been completed on practically all pine areas in the state forests. During 1930, control work was conducted in cooperation with three other state departments in 14 towns, a total of 12,150 acres being cleared of 683,730 wild Ribes and 1,165 cultivated bushes at a cost of \$3,196.59. Similar state land work was conducted during 1931 in 11 towns in cooperation with the Department of Conservation, Department of Mental Diseases, and the Metropolitan District Water Supply Commission. This work resulted in 5,537 acres of land being cleared of 93,398 wild and 187 cultivated bushes at a total cost of \$2722.52.

Plantations: Protection secured in conjunction with general control program.

Nursery sanitation: All nurseries growing white pine for public sale were cleared of Ribes prior to 1925. During 1925 and 1926, a special survey was conducted to eradicate all Ribes nigrum from within one mile of all pine growing nurseries. In this work, a total of 217 Ribes nigrum, 319 flowering currants, and 20 other cultivated Ribes were destroyed. These bushes were owned by 155 persons, but claims were made by only ten persons for loss of 106 bushes. During 1927 and 1928, the protection zone for wild and cultivated Ribes, except nigrum, was increased from 900 to 1500 feet around nine of the main commercial nurseries, and a total of 4,942 wild Ribes and 3,345 cultivated bushes were destroyed. Fifty persons claimed \$647.15 for loss of 1400 cultivated Ribes. Spot pine infections were found in six nurseries during 1928, but no new outbreaks were located.

The policy of the Division of Plant Pest Control to establish Ribes free conditions in the environs of only the more important white pine producing nurseries was continued during 1929. It is believed that the expenditures necessary for the establishment of Ribes free zones around any additional nurseries would not be justified, because of the relatively limited number of white pines produced. Nursery sanitation measures were applied during 1929 to four commercial nurseries owning areas in eight towns. A total of 720 wild Ribes, 104 black currants, and 1,131 other cultivated bushes were destroyed. Only 11 claims for reimbursement were received for the loss of 106 cultivated Ribes. Three of the state nurseries of the Department of Conservation were also examined, but no Ribes were located. The spring inspection of the white pines in the Massachusetts nurseries, made by representatives of the Division of Plant Pest Control, resulted in the disease being found in three nurseries. Only six infected trees were located.

During 1930, sanitation work was conducted around three commercial nurseries owning areas in four towns; 270 wild Ribes and 129 cultivated bushes being pulled from the 197 acres examined. One claim for reimbursement was received for the loss of 49 cultivated Ribes. In the annual spring inspection of the white pines in the larger nurseries, a total of nine infected trees were found in three nurseries. Nursery sanitation work in 1931 was confined to the reexamination of the environs of three of the most important commercial pine growing nurseries. Only 31 wild Ribes were found on all the areas examined--totalling 1162 acres. There had been no replanting of cultivated Ribes in these sanitation zones. The regular spring inspection of the white pines in the Massachusetts nurseries resulted in only 6 diseased trees being found in two locations. Future sanitation work will be limited to the reexamination of the environs of those nurseries which have already been initially protected.

Ribes nigrum: Several thousand cultivated black currants were destroyed in Massachusetts during 1917, in connection with a state cultivated Ribes census. In 1927, a special regulation was made effective prohibiting the possession of Ribes nigrum in the state, and a systematic campaign was begun to eliminate such bushes. Up to 1932, black currant eradication work had been completed in 247 Massachusetts towns and partially finished in 32 additional ones. A total of 38,315 Ribes nigrum were destroyed in these towns since 1927. During 1930 and 1931, black currant eradication was conducted as a special project and a separate record kept of this work. This special project was carried on in 168 towns, the work being completed in all but one of them. An inspection has been made of 250,943 properties. This work resulted in the location and destruction of 2,864 plantings, containing a total of 23,906 black currants. In Agent Brockway's district, all efforts were concentrated on this one project. All black currant work in the state prior to 1930 was conducted in conjunction with regular control activities.

Surveys: Cultivated Ribes census throughout entire state in 1917 - data compiled and a summary report prepared - used as a basis for inspections and eradication of Ribes nigrum. During 1920, strip line infection survey was made - the pines on a rod wide strip totaling 4.4 miles in length were examined - a total of 871 pines were inspected and 5.7% were found infected - 9 plots, totaling 3 acres, were laid out adjacent to the strips; 27% of the 637 pines in these plots were diseased - epidemiology survey by agents during 1926 of white pine and other types, Ribes and infection - maps and summaries prepared at Boston Office.

Infection: General, but spotted and light, especially in eastern and central parts of the state. In these sections, most of the infections are old ones caused by Ribes nigrum; eradication of most of these bushes in 1917 had a decided effect in checking spread of disease, as wild Ribes are localized in these sections. Also, see strip line data under "Blister Rust Surveys". During 1929, pine infection was reported for the first time in seven additional towns. Scouting by Hodgkins and the Massachusetts agents in 1930 and during the spring of 1931 resulted in diseased pine being found in 41 other Massachusetts towns. To date, pine infection is known to be present in 328 Massachusetts towns out of a total of 355 in the state. The non-infected towns are either in the metropolitan district of Boston or contain little or no white pine.

Investigations: Demonstration control areas established at Barre and Pembroke - no check study available. Pine infection study made by Root at Pembroke, also infection studies made by Pickler at Sandisfield, and by Hodgkins at Swanzey - reports submitted. Cutting out of cankers studies made by Martin at Ipswich, and by Hodgkins at Pembroke - published report by Martin. Damage plots laid out by agents in western Massachusetts - used for demonstration and informational purposes. Sample forest type map made of Duxbury, used as basis for control work. Study on spread of disease from skunk currants started by Clave during 1927 - report presented at annual conference showed

only limited spread from such Ribes. Since 1928, Clave has conducted experiments to determine the effectiveness of sodium chlorate in killing skunk currants - preliminary reports have been given at the annual conferences. Also, a few additional plot studies were made of blister rust damage.

Office: Records and maps for most part in good shape.

Future Work: Complete initial eradication, 20,000 acres (based on estimates by agents of acreage still remaining to be done in each town at end of 1930 eradication season - includes both acreages of pine and protection strips). Reexamination of initial control areas that have not been reeradicated of Ribes, 1,555,788 acres; estimate 50 per cent, or 777,894 acres, will need intensive reworking. Complete Ribes nigrum eradication throughout state - complete chemical eradication study - make additional studies to determine effectiveness of control - maintain Ribes free conditions in the environs of pine growing nurseries.

RHODE ISLAND

Policy: All control work performed by state scouts, as wild Ribes number less than one per acre and are very localized. Since 1929, all control work has been confined to the elimination of Ribes nigrum from the state.

Acreage of pine: Pure, 13,779 acres; restocking of pine in types other than pine, 59,417 acres; total, 73,196 acres - also considerable acreage of potential pine land.

Cooperation: No cooperation solicited, except in 1918, 1923, and 1924, when eight individuals gave \$581.36 for conducting general control work in the state.

<u>Ribes eradication:</u> (Initial and Re- protection)	<u>Period</u>	<u>Acreage</u>	<u>Ribes Pulled</u> (Wild & Cult.)	<u>Total</u> <u>Cost</u>	<u>Cost</u> <u>Per Acre</u>
	1918-1921	103,261	85,493	\$16,761.55	\$.162
	1922-1931	180,331	121,251	13,811.74	.077
	Totals	283,592	206,744	\$30,573.29	\$.108

(Eradication cost based on total cost of state scouts - No wild Ribes eradication work performed during 1929, 1930 and 1931.)

Cultivated Ribes destroyed: 1918-1921, 4251 bushes; 1922-1931, 7816 bushes; total for period 1918-1931, 12,067 bushes. (Does not include cultivated Ribes pulled in connection with black currant eradication project during 1929-1931, inclusive)

Compensation - 1922-1931: Number persons paid compensation - 7; total number bushes paid for - 94; total amount paid in reimbursement - \$35.85.

Reprotection: The above acreage includes 10,910 acres reworked since 1922.

State forests: The one state forest (Goddard Park) has been protected.

Plantations: All plantations in control areas have been initially protected. The outside plantations are in little danger due to the scarcity of wild Ribes. However, a special white pine plantation survey conducted in 1931 revealed that considerable blister rust infection exists in some of these plantings made from stock purchased from an out-of-state nursery. The details of this survey are given under "Blister Rust Surveys". Control areas will be established around these infected plantations in 1932 to prevent further spread of the disease.

Nursery Sanitation: Only a few ornamental pines are grown in the Rhode Island nurseries. Such nurseries and environs are inspected annually by state men - no pine infection has ever been found. During 1932, a survey

CHAPTER I

The first part of the book is devoted to a general introduction to the subject of the book. It is divided into two main parts, the first of which is devoted to a general introduction to the subject of the book, and the second of which is devoted to a general introduction to the subject of the book.

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will be made to determine the advisability of establishing sanitation zones around the pine growing nurseries.

Ribes nigrum: A state law prohibits the possession of such bushes in the state. A survey to locate *Ribes nigrum* was completed in two towns in 1927. These bushes were eradicated in 1928. During 1929, all the control work was limited to the systematic eradication of *Ribes nigrum*. A total of 5703 *Ribes nigrum* and 906 other cultivated bushes were destroyed in 22 towns. This project was continued in 1930, when 3930 *Ribes nigrum* and 31 other cultivated *Ribes* were eradicated in 18 towns. Similar work in 11 towns and cities during 1931 resulted in 4296 *Ribes nigrum* and 156 other cultivated *Ribes* being destroyed. This special black currant eradication project has now been completed over the entire state with the exception of the cities of Providence, Central Falls, and portions of Pawtucket and Cranston.

Surveys: A rough survey of white pine areas in state was made by Sheals in 1920. This information has been used for control and informational purposes. During 1926, a cartographical survey was completed of white pine and other types, *Ribes* and infection conditions - These data summarized at Boston Office. A survey of the production of white pine and other woods in the state during 1925 was made by Anderson. Report prepared and published in News Letter. During 1928, Hurford began a survey to map the location of white pine and other forest types, and to estimate their contents. Two townships (Coventry and West Greenwich) were completed during 1928. Due to pressure of other work, this project was limited since 1929 to the field mapping of forest areas in the townships of North Providence, Lincoln, and Cumberland. A few towns were partially mapped. During 1931, a special survey was made of 16 plantations established during 1929 and 1930 with white pine stock from an out-of-state nursery. Of the 44,939 pines examined, 1,355 or 3.0% were found to be infected with a total of 1,373 blister rust cankers. Data taken on the age of the cankers (determined by age of wood on which infection occurred) showed that in all cases the infections developed before the pines were shipped from the nursery. State officials took immediate action to prevent further shipments of white pine into Rhode Island from this nursery, and the nurseryman in question has cooperated to the fullest extent in offering to replace the infected stock with some other species according to the wishes of the individual planter.

Pine infection: Few spots, mostly from cultivated black currants - many of the infections have been cut out.

Investigations: Study of *Ribes* regrowth and effectiveness of control made by Anderson, report prepared by Anderson and Fivaz.

Office: Records of control work in good shape.

-)) Future Work: Complete initial protection of pine areas and potential pine land; estimate 250 acres need to be worked. Protect pine plantations outside control area. Reexamination of all control areas (272,682 acres) and eradication of Ribes in all likely sites such as: swamps, stream courses, fence rows, walls, cellarholes and roadways. This check work in likely sites will take a four man crew at least two or three seasons - report on all control work in state - complete survey of forest types and an estimate of their contents - completion of Ribes nigrum project - establish and maintain Ribes free conditions in environs of pine growing nurseries.

CONNECTICUT

Policy: In Litchfield County, where pine and Ribes are more or less generally distributed, cooperation is conducted with individuals and towns; foremen and scouts being furnished by the state. Outside Litchfield County, Ribes are comparatively few and localized; consequently, the control work is limited to scouting performed by state men.

Acreage of pine: Pure, 73,426 acres; mixed, 124,345 acres; pine restocking in types other than pine, 18,383 acres; total, 216,154 acres.

<u>Cooperation:</u>	No.	Individual	No. Town	Town Money
Period	Individuals	Expenditures	Appropriations	Expended
1918-1921	0	0	0	0
1922-1931	469	\$7,662.29	22	\$10,554.89*
Totals	469	\$7,662.29	22	\$10,554.89*

*Includes \$4,290.98 raised by individual subscription.

<u>Ribes Eradication:</u>			<u>Ribes Pulled</u>	Total	Cost
(Initial and Re-protection)	Period	Acreage	Wild	Cult.	Cost
	1918-1921	13,470	125,263	8	6,962.11
	1922-1931	274,721	1,774,270	21,956	\$64,277.09
	Totals	288,191	1,869,533	21,964	\$71,239.20
					\$0.247

(Eradication costs based on total cost of owner's labor, state labor, scouts and foremen.)

Cultivated Ribes Compensation, 1922-1931: Number persons paid compensation - 16; total number bushes paid for - 175; total amount paid in reimbursement - \$103.50. No compensation was paid prior to 1929. These compensation figures include \$76.25 paid by individual cooperators (nurserymen) during 1930 to 12 owners of cultivated Ribes for the destruction of 114 bushes.

Reprotection: The above acreage includes 52,053 acres reworked since 1924.

State forests: The state forests contain very little pine - protection work has been conducted where necessary.

Plantations: The plantations in the northern portion of the state are being worked in connection with the protection of native pine. The scattered plantings in the remainder of the state outside the natural pine range are in comparatively little danger due to scarcity of wild Ribes. Many of these isolated plantings have been inspected, but very little follow up work has been done.

Nursery sanitation: During the fall of 1927, 158 owners of nurseries were interviewed regarding blister rust control. Sixteen owners, desiring to ship pine out of New England, agreed to cooperate in maintaining official control areas around their nurseries. A preliminary Ribes survey of these areas showed 70 Ribes owners, possessing 1,014 cultivated bushes, would permit the destruction of the plants without compensation; and that 27 owners, having 567 bushes, were unwilling to cooperate. The attitudes of 28 additional owners of 342 bushes were not determined. As a result of the survey, control areas were established around eleven nurseries, and during 1928, 3962 acres were cleared of 60 wild Ribes, 93 Ribes nigrum, and 333 other cultivated bushes.

Such sanitation work was continued during 1929 in the environs of eleven nurseries, 5960 acres being cleared of 1182 wild and 1814 cultivated Ribes at a total cost of \$832.32. All of this work, except that on 380 acres, was reprotection. Only five nurseries intend to qualify under quarantine 63. Nine nurseries will continue to maintain the sanitation zones. During the fall of 1929, the state leader made a survey of nurseries, having or considering the sanitation zones, to ascertain their attitude towards state maintenance of these zones with the nurserymen contributing a substantial part of the cost. All were favorable to the plan and expressed their willingness to cooperate in amounts ranging from \$25 to \$100 annually. During 1928, pine infection was found in the Northeastern Forestry Company nursery, and in 1929 in two additional nurseries.

Sanitation work was conducted during 1930 around 13 nurseries including one owned by the state; a total of 3,544 wild Ribes and 643 cultivated bushes being eradicated from 14,991 acres at a cost of \$880.69 to the state and \$661.36 to the cooperating nurserymen. All but 3,914 acres of this work was reprotection. During 1930, the applications of two nurseries (A. N. Pierson, Inc. and H. J. Zack) were tentatively approved by the federal Quarantine and Control Administration and permission granted to plant white seed under sanitary conditions.

During 1931, reprotection work was performed around 11 commercial nurseries. A total of 14,991 acres were reexamined, 1545 wild Ribes and 255 cultivated bushes being destroyed at a cost of \$357.99 to the state and \$372.50 to the Government. In addition, a sanitation zone was established around the state forest nursery at Barkhamsted where 2673 acres were cleared of 3087 wild Ribes at a total cost of \$291.59. The State Forestry Department expended \$80.00 on this project and the balance was paid from the regular state blister rust control appropriation funds.

Ribes nigrum: In July 1929, the Connecticut Legislature passed a bill prohibiting the planting, selling or possession of *Ribes nigrum* in the state. A systematic campaign to eradicate black currants was inaugurated during 1930 in connection with a census of cultivated *Ribes*. Such work was completed in four towns and partially finished in one additional town; 37 *Ribes nigrum* and 2,973 other cultivated *Ribes* being destroyed at a total cost of \$938.60. Similar cultivated *Ribes* eradication work was carried on in nine towns during 1931; none of the towns being entirely completed. A total of 126 *Ribes nigrum* and 8378 other cultivated bushes were destroyed at a total cost of \$1,960.59.

Surveys: During 1920 and 1921, all pine areas in the commercial pine range were mapped on U.S.G.S. sheets, and an estimate made of their contents - data used as a basis for control work and for informational purposes. Epidemiology survey during 1926 of white pine and other types, *Ribes* and infection conditions - data summarized at Boston Office.

Infection: General in northern Litchfield County - only spot infections, mostly old cankers, in remainder of state.

Investigations: *Ribes* regrowth and effectiveness of control study by Endersbee, report prepared - crew experiment by Riley, preliminary report submitted - Studies made by Clark and Riley during 1929 to determine effectiveness of control and need for reprotection - data summarized. Two permanent pine infection data plots have been established in the town of Salisbury and a similar study is planned in Cornwall. A special report of Plot #1 in Salisbury was prepared by Riley, and the details of Plot #2 are given in his 1931 annual report.

Office: Records and maps in excellent shape.

Future Work: Initial control work completed. Reexamination of initial control areas that have not been reeradicated of *Ribes*, 184,805 acres; estimate 50%, or 92,042 acres, will need intensive reworking. Complete survey of *Ribes nigrum* and elimination of these bushes in state - Nursery sanitation measures applied to all nurseries growing white pine - complete inspection of all white pine plantations in state - additional studies to determine effectiveness of control work.

NEW YORK

Policy: Protection of white pine on state lands and on lands owned by individuals. State cooperates with such owners by furnishing, at state expense, foremen to supervise control work. In the future, control work on the state forest preserve will be restricted chiefly to pine areas of scenic importance; isolated pine areas of medium or old growth will not be protected.

Acreage of pine: Pure, 671,771 acres; mixed, 473,917 acres; pine restocking in types other than pine, 170,269 acres; total 1,315,957 acres.
(Based on 1927 survey.)

<u>Cooperation:</u>	<u>Period</u>	<u>No. Individuals</u>	<u>Individual Expenditures</u>
	1918-1921	41	\$18,658.34
	1922-1931	4978	144,167.50*
	Totals	5019	\$162,825.84

*Does not include \$3664.20 spent by individuals on unsupervised Ribes eradication work during 1922.

<u>Ribes Eradication:</u>			<u>Ribes Pulled</u>		<u>Total</u>	<u>Cost</u>
(Initial and Re-protection)	<u>Period</u>	<u>Acreage</u>	<u>Wild</u>	<u>Cult.</u>	<u>Cost</u>	<u>Per Acre</u>
	1918-1921	68,062	4,511,845	13,736	170,343.75	\$2.50
	1922-1931	651,993	13,016,731	35,706	\$467,132.24	.716
	Totals	720,055	17,528,576	49,442	\$637,475.99	\$.885

(Eradication costs include total cost of owner's labor, state labor, foremen and scouts.)

Cultivated Ribes Compensation, 1922-1931: Number persons paid compensation - 665; total number bushes paid for - 3901; total amount paid in reimbursement - \$1552.96.

Reprotection: Since the inauguration of the present program, reprotection work has been performed only during the period 1928-1931, inclusive, when 51,880 acres were cleared of 475,135 wild Ribes and 2612 cultivated bushes at a total cost of \$22,386.66.

State forests: Practically all of the control work prior to 1922 was on state lands; however, since then the amount of work on private lands has greatly exceeded the state projects. Initial control work has been completed on most of state pine areas worth protecting, except in a few new purchases.

Plantations: The New York State nurseries have distributed, up to and including 1931, 73,612,678 white pines for planting in the state. Many of these plantings have been protected, especially in the agents' districts, but in other parts of the state no such control work

has been done, except that by Agent Baker during 1929 in 5 counties in the northwestern part of the state. New York requires all prospective planters to sign an agreement, guaranteeing to eradicate all Ribes from pine planting sites. The Hewitt Reforestation Law, passed in 1929 and amended in 1930, provides for the purchase and reforestation of a million acres within a period of 15 years at a cost of \$20,000,000.00. A portion of the appropriation is available for protection work and in this connection the areas planted to white pine are being cleared of Ribes together with adequate protection zones. During 1930, a total of 2,430 acres were eradicated of 33,565 wild Ribes at a total cost of \$1,686.27. Similar work during 1931 resulted in 16,995 acres being cleared of 419,138 wild and 1,837 cultivated currant and gooseberry bushes at a total cost of \$10,938.19. On November 1, 1931, there were 15,426,000 white pine seedlings and transplants in the five nurseries of the New York Conservation Department.

Nursery sanitation: During the past several years, sanitation measures have been applied to protect the pine areas in the state nurseries. The protection zones were for some time maintained at 900 feet. During 1928, this distance was increased to 1500 for all Ribes, except nigrum, which was eradicated within one mile of the pine areas. To date, Ribes nigrum have been eradicated from within one mile of each of the five state nurseries and the 900 foot Ribes free zones have been completely extended to 1500 feet. All of the sanitation work in 1929 and 1930 was confined to state nurseries.

In addition to the state nurseries, there are 300 commercial nurseries in New York. However, only a few of these grow an appreciable amount of white pine. During 1928, the first attempt was made to establish protection zones surrounding some of these nurseries, particularly in Wayne and Westchester counties. It soon became apparent that cultivated Ribes were extremely abundant in the vicinity of the various nurseries. As compensation had to be paid for such bushes destroyed, it was evident the work would have to be limited. Therefore, it was restricted to a general survey to determine and record Ribes conditions in the environs of the nurseries in these counties and to the eradication of Ribes nigrum in such situations. According to the revised state blister rust law, effective February 17, 1930, no compensation shall be paid by the state for any species of Ribes destroyed in connection with the establishment of Ribes free zones around commercial nurseries, but fair compensation for such bushes must be paid by the person owning or operating the protected nursery.

During 1930, a federal pine shipping permit was issued to the Jackson & Perkins Nursery of Newark, New York. This company may therefore ship white pines interstate according to the regulations of quarantine 63.

During 1931, reprotection work was conducted around the five state nurseries and the Jackson-Perkins nursery. In addition, the environs of two small private nurseries were initially cleared of Ribes.

Ribes nigrum: The New York state law prohibits the possession of such bushes. A systematic survey to eradicate Ribes nigrum was started in 1928. This work was chiefly confined to control areas and to nursery growing sections, and resulted in 8825 black currants and 439 flowering currants being destroyed, not including bushes eradicated in connection with the regular control work. In Westchester County alone, 3313 Ribes nigrum were uprooted and the survey completed in all but six towns. During 1929, black currant eradication was conducted as a special project in 47 towns in 11 counties. A total of 4048 Ribes nigrum and 322 flowering currants were destroyed, exclusive of the black currants eradicated in connection with the regular control work. This special campaign to eliminate Ribes nigrum was continued during 1930 in 58 towns where 2455 black currants were destroyed at a total cost of \$2,959.35. The revised blister rust law does not include flowering currants as one of the prohibited black currants. Similar black currant eradication work was completed in 29 towns during 1931, in the counties of St. Lawrence, Otsego, and Essex; 1443 Ribes nigrum being eradicated at a total cost of \$1817.92. Thus, during the period 1928-1931, inclusive, a total of 16,771 Ribes nigrum and 761 other cultivated Ribes have been destroyed in connection with this special project in 156 towns at a total cost of \$13,455.51.

Surveys: Strip line infection survey made by Brooks in 1920 - The pines on rod wide strips, totalling 28.4 miles in length, were examined; a total of 12,297 pines were inspected, and 5.1 percent found diseased; 16 plots, totalling 15.1 acres, were laid out adjacent to the strips. 17.5% of the 14,455 pines in these plots were diseased. In 1922, Fivaz made a similar strip study near Warrensburg of 12.1 miles in length and found 21% of the 8139 pines infected. During 1920 and 1921, Amadon made survey of white pine in parts of Essex and Warren Counties - the pine areas have been designated on U.S.G.S. maps, but no summary has been made of acreage or contents of the stands - maps used as basis for control work. Cartographical survey made by agents and Corliss, during 1926 and 1927, of white pine and other forest types, Ribes, and infection conditions - maps and summaries prepared at Boston Office. During the period 1927 to 1931, McIntyre had maps made of the pine and hardwoods types in all the main pine growing counties of the state. These maps have been of special use in control work.

Infection: General and abundant in commercial white pine range of the state; spot infections in other parts, caused principally by infected stock or Ribes nigrum. In generally infected region, on a basis of town units, the percent of diseased pine ranges from 1-30 per cent of the total amount of pine. Also, see strip line data under "Surveys".

Investigations: Selective Ribes eradication experiment at North Hudson - not completed - no report. Effectiveness of control study made by Fivaz - preliminary report only. Blister rust damage studies by York and Snell - published in Journal of Forestry. Ribes ecology studies by Littlefield and Fivaz - results of Fivaz's study published in 1931. Damage study of pine plantation at Schroon River - preliminary report prepared by Ford. During 1928, the pines were examined for infection in 30 plots (each approximately one acre in size) 15 of the plots being laid out in areas cleared of Ribes prior to 1925, and the other 15 in tracts not eradicated of such bushes in the same towns. The study showed that since the time of eradication, over 15 times as much infection has originated in the unprotected tracts, as in the protected areas. During 1929, nine additional pairs of comparable plots were examined by the agents and the data summarized at the Boston Office.

Office: Records and maps in good shape.

Future Work: Complete initial eradication work on state and individually owned lands - 260,274 acres in agents' districts (basis: estimates made by agents of acreage still needing initial eradication work in each town, including both pine areas and protection strips). In addition, there are 132,301 acres (mostly plantations and mixed growth) outside of the agents' districts, which will require Ribes eradication. Reexamination of 616,295 acres that have not been reeradicated of Ribes - estimate 50%, or 308,147, acres require intensive reworking. Elimination of Ribes nigrum throughout the state - application of adequate sanitation measures surrounding all nurseries growing white pine - Inspection of pine plantations and application of control measures - Complete recheck of Amadon's pine survey in Warren and Essex Counties.

NEW JERSEY

Policy: Prior to 1929, all blister rust activities in this state were conducted by a few temporary men, employed during the summer months, on scout work to determine pine, Ribes and infection conditions. Since August, 1929, a permanent agent has been employed on a part time basis. Due to the limited amount of native white pine, his activities are confined chiefly to nursery sanitation, black currant eradication, inspection and protection of plantations, scouting, and direction of control work where needed.

Acreage of white pine: From a forestry viewpoint, there is very little white pine in the state; however, it has been planted extensively as an ornamental, especially in the Red Bank and Morristown sections. In Passaic County, a light stocking (less than 20 per cent) of native white pine is found in hardwood types in the Greenwood Lake section, on Bearfoot Mountain, and near West Milford. At the last place, there is almost a pure stand of white pine comprising several acres. Also, in Sussex County, a light stocking of white pine exists on Waywayonda Mountain (from Vernon north to the state line), Pochuck Mountain, Sparta Mountain, Kittating Mountain, and around Cranberry Lake. It is most abundant in the township of Montague. In Warren County, there is also a light stocking along the Delaware between Columbia and Manunka Chunk.

Cooperation and Ribes eradication: Many owners destroyed their Ribes nigrum; also, there is an unwritten agreement between the New Jersey nurseries not to sell these bushes. Wild Ribes are known to exist in the northern part of the state, particularly on Waywayonda Mt. and near West Milford, where Ribes rotundifolium and americanum have been found. The location of the wild Ribes in relation to valuable pine areas is such that the destruction of these bushes does not appear urgent.

State forests: Six forests, comprising 18,954 acres, apparently contain little white pine of commercial importance.

Plantations: About 10,000 acres have been planted; however, the white pine survey shows only an estimated total of 194,840 planted white pines exclusive of 21,388 reported in nurseries. The largest white pine plantings are located in Gloucester, Morris, Cumberland, Ocean and Somerset Counties. Smaller white pine plantings are found in the Counties of Monmouth, Warren, Burlington, and Sussex. There is one state nursery of about ten acres in size. During 1929, an inspection was made of the sites and environs of the white pine plantings made from stock distributed during that year by the State Department of Conservation and Development. These locations were examined for wild and cultivated Ribes, and when Ribes and older pines were found nearby, these were inspected for infection. Owners, in each case,

were advised regarding the disease and control methods. The plantations varied from 500 to 10,000 seedlings, and on 30 sites examined, 323 cultivated currants and gooseberries (mostly red currants) were located - none of these bushes were infected. Card and map records of this work were kept for future reference.

Nurseries: In New Jersey, there were 112 commercial nurseries which contained host plants of blister rust February 1, 1931. Some ornamental white pines were being grown in 97 of these nurseries and 22 were raising both host plants. At the time of the survey, there existed in these commercial nurseries 120,577 ornamental white pines and 13,769 cultivated Ribes. In addition, the state nursery contained 423,000 white pines. Sanitation work was begun around this nursery during 1931 when a total of 27 cultivated Ribes, including seven infected black currants, were removed from within a 1500 foot protective zone.

Ribes nigrum: Survey of black currants made during 1928 in Morris County, also in parts of Monmouth and Sussex; 102 plantations of black currants were located in Morris County, 19 in Monmouth, 10 in Sussex, 1 in Warren, and 1 in Passaic Counties. In the area scouted, black currants were found in only one nursery.

Investigations: General scouting to locate pine, Ribes and infection conducted during summer months by one or two cooperative scouts - state wide survey of forest types, by towns, made by Hirt during 1927 - this detailed data have not as yet been summarized.

Infection: First found in New Jersey in 1911 on pines at the Newark water shed near Charlotteburg. Since then, infection has been found somewhere in the state every year with exceptions of 1912, 1914, 1915, 1923, and 1929. Scouting in 1927 showed the disease more generally prevalent than ever before, being found on Ribes in 21 localities in seven counties. No pine infection has been reported since 1918.

Future Work: Application of adequate nursery sanitation measures - complete survey of Ribes nigrum and eradication of such bushes - eradication of all Ribes within at least 900 feet of pine plantations and ornamental pine of value - additional scouting in northern section of state to determine, in more detail, pine, Ribes and infection conditions, - adequate records and maps to show location of pine plantations, Ribes nigrum, native pine, infection, etc. - general educational work to keep public informed of the disease and its control.

PENNSYLVANIA

Policy: Prior to 1929, the work was limited chiefly to scouting for pine, Ribes, and infection during the summer months by one or two temporary men employed cooperatively by the State and Federal Departments of Agriculture. The first demonstrations of control methods were held during 1928 by the Department of Forests and Waters in cooperation with the Office of Blister Rust Control. In 1929, the work was definitely organized on the following cooperative basis: The State Department of Agriculture agreed to assume administrative direction of cooperative employees, conduct such control activities as agreed upon each year by the cooperating parties, and to enforce state laws under which blister rust control is conducted. The Department of Forests and Waters agreed to undertake the application of local control measures on state owned forests; cooperate with counties, towns, associations, and individuals in the application of local control measures and provide supervision and checking of such work. In 1930, the Department of Forests and Waters assumed the responsibility, through its state blister rust leader and district foresters, of directing all control activities in the state. Most of the Ribes eradication work during 1929 and all that done in 1930 was performed on state lands. Such work was continued during 1931. In addition, six agents were employed during the summer to conduct control work on individually owned lands. These men did the necessary scouting for Ribes and assisted owners by supervising the eradication of concentrations of such bushes on their properties.

Acreage of white pine: Pure, 91,897 acres; mixed, 126,101 acres; pine restocking in types other than white pine, 157,630 acres; total, 375,628 acres. In addition, there is a vast unestimated acreage containing less than 20 per cent pine stocking in mixture with other species. These figures are based on the 1927 cartographical survey. About 60 million white pines have been distributed from the state nurseries since 1903. In 1922, a survey was made of white pine stands in Wayne and Susquehanna Counties.

Cooperation: Individual cooperation in regular control work was secured in 1929 and 1931 when 105 owners expended \$655.52 in eradicating Ribes. However, a small amount of unsupervised control work was performed around pine plantations on the Fox Estate in Clarion County during 1928.

Ribes Eradication (1929-1931 Inclusive):

Project		Acreage Cleared of Ribes	Ribes Pulled		Cost			
			Wild	Cult.	Indiv.	State	Govt.	Total
State Work On	Individuals' Lands	9,465	1,315	476	-	3.60	212.40	216.00
	State Forests	28,496	1,750,260	918	-	21,779.64	-	21,779.64
	State Nurseries	1,641	17,760	-	-	998.29	-	998.29
Federal work (F.S.) (Hearts Content)		461	23,020	8	-	-	198.30	198.30
Individual Cooperation (105)		3,745	66,864	725	655.52	48.60	302.80	1,006.92
Totals		43,808	1,856,219	2,127	655.52	22,830.13	713.50	24,199.15

The only control work prior to 1929 was in connection with the protection of three state nurseries. This control project was begun in 1924 at the Clearfield nursery, and in 1926 and 1928 this area was reworked. In 1927, the Greenwood and Mount Alto nurseries were initially protected. During 1928, three small demonstrations of control work were given by federal men for the benefit of members of the State Department of Forests and Waters. Acreage, Ribes, and cost data are not available for the work prior to 1929.

Reprotection: The Hearts Content tract on the Allegheny National Forest was reworked during 1931; a total of 13,321 wild Ribes, mostly small bushes, being destroyed at a cost of \$213.39.

Public Forests: On July 15, 1930, the state forests totalled 1,558,167 acres. The Allegheny National Forest is also located in Pennsylvania. The amount of native white pine on these forests is rather limited. However, several million white pines have been planted on the state forests since 1903. The Hearts Content tract, comprising 461 acres on the Allegheny National Forest was initially cleared of Ribes during 1929, and reexamined for Ribes in 1931. Also, 23 eradication projects were conducted during 1929 in eight state forest districts. A total of 4,877 acres of state land was eradicated of 305,583 Ribes at a cost of \$3,348.96. During 1930, 67 state land projects in 15 of

the state forest districts resulted in 11,745 acres being cleared of 656,768 wild and 863 cultivated Ribes at a cost of \$8,631.48. Similar state land projects conducted during 1931 resulted in 787,942 wild Ribes and 2 cultivated bushes being removed from 11,874 acres at a total cost of \$9,797.20. Plans have been made to eradicate the Hazelwood Oil Company tract on the Allegheny National Forest during the spring of 1932.

Plantations: Since 1903, the six state nurseries have distributed to individuals about 30 million white pines. In addition, these nurseries have supplied about 30 million white pines for planting on the state forests. A complete record of all these plantings is on file at the office of the Department of Forests and Waters. Recent examination of many of the plantings has resulted in the blister rust being found on pines in several of the areas. During 1929-1931, inclusive, many of these plantations on state land were cleared of Ribes. When the disease has been located in private plantings, the owners have been fully informed regarding conditions.

Nursery sanitation: Nursery sanitation has been restricted to three state nurseries located at Clearfield, Greenwood, and Mount Alto. Ribes eradication work was first conducted around the Clearfield nursery in 1924. During 1926, a reexamination was made within a 900 foot protection zone. The area was again reworked in 1928 including all white pine plantations in the vicinity of the nursery and for a distance of 900 feet beyond the plantings. In 1927, initial control work was performed at the Greenwood and Mount Alto nurseries. During 1930, all three state nurseries were reeradicated of Ribes and protected by 1500 foot sanitation zones. This 1930 work resulted in 886 acres being cleared of 7,248 wild Ribes at a cost of \$507.63. Re-protection work was also conducted around these three state nurseries during 1931 when 755 acres were reexamined and 10,512 wild Ribes removed at a cost of \$490.66.

The amount of white pine grown in commercial nurseries is very limited and used entirely for ornamental purposes. Practically all of these commercial nurseries are located in open situations, where wild Ribes are absent or very scarce.

Ribes nigrum: Cultivated Ribes survey made in Wayne County in 1925 - 279 black currants being found. General scouting and the school campaign show Ribes nigrum planted in most sections of the state, but these bushes are apparently not very numerous. During 1929, a few black currants were eradicated on private lands adjoining state forests which were cleared of wild Ribes. Due to the small number of black currants found near the white pine areas, it may be possible to eradicate such bushes in conjunction with the regular control work and thus eliminate a special black currant project.

Surveys and infection: The presence of white pine blister rust was first reported in Pennsylvania by Samuel N. Baxter of Philadelphia, who found infected pines in a nursery near that city in April, 1905. This report, corroborated by the U. S. Department of Agriculture, is the earliest known record of the disease in this country. A state nursery inspector states that blister rust was found at another nursery near Philadelphia in 1910 or 1911. Infected pines were located by J. F. Collins, during 1909, in a plantation at Lewistown Junction. The disease was reported almost yearly thereafter in various counties and frequently noticed on planted foreign stock. Between 1903 and 1910, nearly a half million white pine seedlings were imported into Pennsylvania from European nurseries.

The cultivated Ribes survey in Wayne County, during 1925, resulted in the location of 2,051 cultivated Ribes. Of these, 279 were black currants, 1,496 prickly gooseberries, 250 cultivated gooseberries, and 26 ornamental Ribes - sixty-two gardens contained black currants - blister rust was found at Calicoon on pines and black currants, - at Rileysville on black currants, at Damascus on pines, and wild Ribes, and at Laurella on black currants. The infection at Laurella is a new location, the rust being found previous years in other places.

During 1926, scouting was performed in four northern counties, the rust being found on Ribes nigrum (2 bushes in each case) in the counties of Monroe, Pike, Wyoming, and Lackawana. In Brooklyn, infected wild Ribes were located.

During 1927, a cooperative school survey to locate the rust was made in 57 counties - 14,000 packets (each containing instructions to the teacher, a sheet of information, colored illustrations, ten small envelopes for specimens, a return envelope, and a report form) were sent to each school outside Pittsburg and Philadelphia. In the 53 counties reporting, returns were received from 1,716 schools. These schools reported that 13,061 gardens had been examined, and 253 of these schools sent in 465 envelopes containing specimens infected with blister rust. The rust findings are distributed over 37 counties, and the area so affected extends nearly to the Ohio border on the west, on the south to the Maryland line. Since the number of envelopes submitted was 7,123, the percentage containing blister rust was 6.5%; similarly, the percentage of schools reporting rust was 14.7%. Additional reports were received during 1928 from 50 schools in 7 different counties covering the examination of 365 gardens. These additional 1928 reports contained only one specimen of blister rust.

General scouting in 1927 revealed the presence of the rust in five additional counties (Bucks, Monroe, Luzerne, Columbia, and Clarion); all of these, except Monroe, were new counties for the rust. At Clarion, a stand of pine reproduction was found to be quite heavily infected with young cankers.

In 1928, a somewhat similar infection survey was conducted by utilizing the fire warden personnel (4100 men) of the Department of Forests and Waters. Reports were received from 171, or 4 percent, of the 4100 wardens, scattered over 50 of the 53 counties in the state. These men examined 3,550 Ribes in 501 locations. A total of 91 wardens submitted 269 Ribes specimens, 14 of which were infected with the rust.

A check was also made during 1928 in 28 of the 37 counties where infected Ribes were located by the 1927 school survey. In the course of this work, a scout visited the vicinity of 144 schools which reported the rust in 1927. As a result, the disease was found again near 49 of these schools. The scout examined the Ribes in 204 gardens, and found infected bushes in 64.

During 1928, some additional scouting was also done by federal and state men. As a result of all surveys and scout work in 1927 and 1928, the blister rust was found on Ribes in 43 counties, and on pine in nine locations, scattered over six counties as follows: Cameron, 1; Clarion, 1; Clinton, 1; Lycoming, 1; Potter, 2; Wayne, 3. In three areas, the damage to young pine was severe, while in others, the rust was in its initial stage. Up to and including 1928, pine infections were known to have been present in ten counties of Pennsylvania.

Scouting was conducted by two temporary agents during the summer months of 1929 to determine the amount of infection on Ribes in the southern half of the state from the western edge of the Alleghenies east to the New Jersey border. A total of 31 counties were visited and 932 locations containing 13,402 Ribes were examined. Only 14 bushes (all Ribes nigrum) in 7 locations were found diseased. In addition, a Ribes infection survey was made by the Department of Forests and Waters through their field personnel, numbering about 150 men. In this survey, 296 locations were examined for Ribes infection in 38 counties; the number of plants totalling 4,030. Blister rust was found in 15 locations in 11 counties, in all of which infection had been previously located. The results of these two surveys indicated that infection was exceptionally light on Ribes during 1929, probably due to the extended period of drought. In the general scouting carried on by Hodgkins in cooperation with Clepper and the district foresters in 17 forest districts, pine infection was found in 16 districts comprising 21 counties, in some of which the rust had been previously reported. Scouting during 1930 by Hodgkins and members of the Department of Forests and Waters located pine infection in 3 additional counties. Many new infection areas were also found in counties where the rust was previously known to exist. Prior to 1931, infection had been located on pines in 30 of the 67 counties in the state.

A detailed white pine survey of the State was begun in January, 1931. This work is being performed by the blister rust control personnel with the assistance of the field personnel of the Department of Forests and Waters. During the year the project was completed in 13 counties and 16 additional counties partially surveyed. Pine infection was also reported in three additional counties during 1931. Out of a total of 67 counties in the State, infected pines have now been located in 33 out of the 41 infested counties. The rust is known to be present from the New York border on the north to the Maryland line on the south. It exists in the counties along the Delaware River on the east and extends across the state westward nearly to the Ohio line. The disease can doubtless be found in any section of the state where pine and Ribes association occurs.

MICHIGAN

Policy: Prior to 1927, blister rust work was restricted to a limited amount of scouting for infection on Ribes and pine by temporary employees during the summer months. In 1927, a permanent agent was assigned to take charge of all blister rust control activities in the state. However, no control work was conducted prior to 1928. During that year, Ribes eradication was begun in one town by means of a town appropriation and some individual cooperation. The state legislature established a definite blister rust control law in 1929 and made available \$20,000. for this work during each of the ensuing two years. As a result, the activities since 1929 included all phases of control. An additional permanent agent was appointed during the latter part of 1929 and two more permanent men were added to the force in July, 1930. Due to personnel changes in 1931 and to decreased funds, the blister rust control organization now consists of two permanent agents.

Pine acreage: Most of the white pine in Michigan is located in the upper half of the lower peninsula. The cartographical survey of 1928 showed pine conditions as follows: pure pine, 28,321 acres; mixed, 685,789 acres; pine restocking in types other than pure and mixed white pine types, 125,149 acres; total, 839,259 acres. In addition, there is a considerable acreage of mixed growth which contains less than 20 per cent pine stocking.

Cooperation and Ribes Eradication: (1928 to 1931 inclusive)

Project		Acreage Cleared of Ribes	Ribes Pulled		Cost				
			Wild	Cult.	Towns	Indiv.	State	Govt.	Total
State Work On	Individuals' Lands	2,660	30	0	-	-	40.51	51.40	91.91
	Public lands*	2,170	119,893	391	-	-	2663.47	378.97	3,042.44
	Nursery sanitation	200	45,236	4	-	-	787.41	8.83	796.24
Town cooperation (4)		3,300	141,895	341	722.70	-	737.58	-	1,460.28
Individual cooperation (126)		14,570	825,042	1,045	-	4,667.15	3042.04	768.35	8,477.54
Totals		22,900	1,132,096	1,781	722.70	4,667.15	7271.01	1207.55	13,868.41

*Includes nursery sanitation work prior to 1930 for which no separate record was kept.

In addition, during the years 1929 to 1931, the state expended \$19,044.15 and the Government \$1,800.18 in locating and eradicating 28,634 Ribes nigrum in 355 towns.

Public forests: In 1926, seventy-eight state forests contained 333,000 acres; two National Forests comprised 127,000 acres - no information is available as to amount of white pine in these tracts.

Plantations: Up to 1925, about 25,400 acres had been planted, but no information is available as to how much of this is white pine. The cartographical survey of 1928 secured partial information on white pine plantings. These data showed 4,846 acres had been planted to white pine.

Nursery Sanitation: During the past few years, annual inspections have been made of pines and Ribes in many of the nurseries. This work by the State Department of Agriculture resulted in the destruction of a large number of black currants by the nurserymen. No complete records of this work are available. The blister rust law passed in 1929 prohibited the possession of the European black currants in the state and also provided for the establishment of control areas. Before the passage of this law, the Commissioner of Agriculture had set aside, by special promulgation, the three principal public nurseries as blister rust control areas. Due to lack of funds, no sanitation work was conducted until 1929, when these three nurseries and environs were eradicated of all currants and gooseberries. Cultivated black currants were also destroyed within a mile radius of each of these nurseries. The protective zone around one of these nurseries (Dunbar Experiment Station) was extended during 1930 when 160 acres were cleared of 45,236 wild Ribes and 4 cultivated bushes at a cost of \$779.58. Sixty acres of this 1930 work was re-protection. During 1931, the environs of two small commercial nurseries were examined, but no Ribes were found on the 40 acres covered at a total cost of \$16.66.

Ribes nigrum: A regulation issued by the Commissioner of Agriculture in 1928 prohibited the possession of Ribes nigrum in counties where infection had been found. The blister rust law enacted in 1929 prohibits the possession of such bushes anywhere in the state. During 1928, a sample black currant survey was conducted in Sheridan Township, Clare County, for the purpose of estimating the time and expense necessary to carry on a general state wide black currant eradication program. The project started as a black currant survey, but developed into one covering all cultivated Ribes. Out of a total of 213 farms in the township, 80 had cultivated bushes as follows: 424 red currants, 215 gooseberries, 121 flowering currants, and 90 black currants - total, 850 bushes. It took one man five days to make the survey. He traveled 168 miles, interviewed 210 persons, at a total cost of \$56.76. During 1929, systematic eradication of cultivated black currants was begun on a county-wide scale. Five lower peninsula counties (Cheboygan, Roscommon, Missaukee, Newaygo, and Montcalm) were completed, and the larger portion of two upper peninsula counties (Marquette and Gogebic) were also canvassed. As a result, 5,194 Ribes nigrum were destroyed at a total cost of \$6,000.87 to the State and \$451.77 to the Government.

The black currant eradication project was continued during 1930 in 136 towns, 134 of which were completed. A total of 17,778 black currants were eradicated at a cost of \$11,476.97 to the state. This special black currant eradication campaign was continued in 75 townships during 1931 when 5662 *Ribes nigrum* were removed at a total cost of \$2,914.72. The project has now been completed in 15 counties in Michigan.

Blister rust infection: General scouting for infection has been conducted during the past several summers. However, it was not until 1927 that the disease was found to be general on *Ribes nigrum* in the southern peninsula. The disease was first found in 1916 on imported pines in an Oakland County nursery - Additional infections were located in Oakland County during 1918, 1919, and 1922. Also, infections were found in Kent County in the western part of state during 1922 and 1923. Most of these infections were primary and occurred on imported seedlings. No additional infections were located from then until 1927. During that year, *Ribes* infections were found in 56 locations in 18 counties. Scouting of about 7,000 acres of pine in St. Clair, Sanilac, Macomb, Clare, and Midland Counties did not reveal any infection.

Infected native white pines were found for the first time in Michigan, during 1928, at Indian River, Tuscarora Township, Cheboygan County. The infected trees numbered about ten. No other diseased pine were located in 1928.

A survey to determine the extent of *Ribes* infection was conducted in cooperation with the schools during 1928. As a result, infected *Ribes* were located for the first time in five counties in the upper peninsula. In addition, the survey revealed infected *Ribes* in nine counties in the lower peninsula; five of this number being new situations and four where infection had been located in 1927. General scouting by the blister rust agent showed *Ribes* infection in three additional counties on the southern peninsula. Thus, up to 1929, the rust had been found on *Ribes* in 31 counties and on native pine in Cheboygan County.

The *Ribes* infection survey in cooperation with the schools was continued during 1929. It resulted in the disease being found in four new places in two additional counties (Delta and Grand Traverse). Diseased *Ribes* leaves were also sent in from nine locations in three other counties where infection had previously been reported. General scouting by state and federal employees revealed infection on native pine in Marquette and Dickinson Counties. This scouting work also resulted in diseased *Ribes* being found in Delta County and in six other counties where the rust had been previously located.

In addition to the general scouting performed by the permanent and temporary personnel in Michigan in 1930, several federal agents were temporarily assigned to a special scouting project during the fall in an attempt to locate new pine infection centers. As a result of the 1930 scouting activities, infection on pine was found for the first time in two additional counties (Baraga and Menominee). Up to 1931, the disease had been reported on Ribes in 38 counties, on native pine in seven counties, and on planted pine only in two other counties.

Cartographical survey: This survey to determine the location and amount of white pine and other forest types in the entire state was completed during 1929. General information was also secured on Ribes species.

Future work: Application of adequate nursery sanitation measures - complete eradication of Ribes nigrum in state - follow-up survey to inspect and map pine areas as determined by cartographical survey - general scouting to determine infection conditions - protection of all native and planted pine on public forests and on areas owned by individuals.

WISCONSIN

Policy: State blister rust control appropriations of \$7500 annually were made available during the fiscal years 1913 to 1920. The amount was reduced to \$4000 annually during the fiscal years 1921 to 1923. Since that time, no state appropriations have been made for blister rust control. However, a limited amount of such work has been performed since 1923 through funds derived from other state sources and from assistance given by a few individual cooperators. The control work prior to 1924 consisted of local eradication of Ribes to protect pine areas and the destruction of infected pines to prevent the spread of the rust. Except for a small amount of individual cooperation, all this work was performed by state men. The control work in Wisconsin has been supervised by a permanent agent. However, during the past few years, he had been used chiefly on special assignments such as transit inspection, experimental work at the Eau Galle demonstration area, scouting, etc. In 1930, a definite control program was adopted and a permanent state leader appointed to take charge of all blister rust control activities in the state.

Acreage of pine: Pure, 11,127 acres; mixed, 109,756 acres; total, 120,883 acres. There is also a considerable acreage of mixed growth containing white pine stocking of less than 20 per cent. Very little restocking of white pine is occurring in any of the types, due in part to grazing, fire, and settlement. Of the total pure pine, 8,092 acres are in three counties of Shawano, Oneida, and Vilas. Native white pine (pure and mixed) is found in 33 counties, pure stands being present in only nine. Nineteen additional counties have pine plantations only.

Ribes Eradication (1920 - 1931 Inclusive):

Project		Acreage Erad. of Ribes	No.		Cost				
			Ribes Pulled		Indiv.	State	B.P.I.	Ind.Ser.	Total
			Wild	Cult.					
State Work On	Individuals Lands	25,576	1,869,460	55	\$1895.51	13,340.89	283.07	-	15,519.47
	State lands	1,769	235,887	-	-	2,374.49*	-	-	2,374.49*
	Federal Indian Res.	3,487	383,250	-	-	937.09	-	1,909.98	2,847.07
Individual Cooperation		1,719	143,442	293	356.95	409.14	-	-	766.09
Nursery sanitation		891	6,316	-	66.15	33.00	-	-	99.15
Federal Work - Eau Galle		732	24,485	-	-	-	511.78	-	511.78
Totals		34,174	2,662,840	348	2,318.61	17,094.61*	794.85	1,909.98	22,118.05

*Includes \$232.92 expended by the State Conservation Department.

All of the acreage listed in the preceding table, except 5,443 acres, was examined during the period 1920 to 1923, inclusive. Most of this early work was state projects on individuals' lands. However, 124 pine owners assisted by eradicating the most visible Ribes on their properties prior to the state crew work. This assistance by individuals had a value of \$1,895.51, including \$21. worth of labor furnished by five owners in 1928. Control measures were applied on the Menomonee Indian Reservation in 1920, 1926, and 1930. The Couderay Reservation at Reserve was protected during 1921. The Interstate Park pine areas were initially worked in 1920. An additional 29 acres in this Park were eradicated of Ribes during 1930, and 580 acres on this Park were reexamined in 1931. No control work was performed in Wisconsin in 1924 and 1925. Since that time, a small amount of Ribes eradication has been conducted each year, all of the cost except \$444.10 being paid from public funds. This \$444.10 includes \$423.10 spent by 47 pine owners who eradicated Ribes on their lands during 1930 and 1931, and \$21. spent by 5 persons in connections with state work on individuals' lands during 1928. The federal work at Eau Galle was performed in 1922 by the Bureau of Plant Industry as an experiment in control measures. During subsequent years, this area has been studied to determine Ribes regrowth and the importance of ecological factors.

Pine eradication: An attempt was made over a series of years to check the spread of the disease by eradicating infected pines as soon as they were discovered. The work of destroying infected trees and in some cases entire stands was conducted, during the period 1916 to 1922, in 17 areas comprising 1,000 acres. In 1916, 5,615 pines were cut on 213 acres at Lake Waupogasset. During 1918, 500 pines were destroyed on 80 acres at Lewis, and 2,405 pines were pruned at Grantsburg. Over 30,000 board feet of white pine were cut in eradicating diseased trees in 1920.

Public forests: Initial control work completed at Interstate Park, also on most of the pine lands of the Indian Reservation near Keshina - no other data available except for 1931 work when the pine areas at Interstate Park were reexamined and initial control work was conducted at Copper Falls and Brule River State Park. In 1926, the state owned 173,000 acres of state forests. These apparently do not contain much white pine.

Plantations: Most of the planting has been done during the last five years - According to the 1927 cartographical survey, 1,262 acres have been planted to white pine in 33 counties. No information available as to protection of these plantations.

Nursery sanitation: In 1925, the state maintained one small nursery. However, since that time, the facilities for raising planting stock have been greatly increased. The pine and Ribes in the commercial nurseries have been inspected annually, but no infection has been found. No information is available as to

protection measures prior to 1931. During that year initial control work was conducted around three nurseries (U. S. Forest Service, State, and Nekoosa Edwards Paper Company). As a result of this sanitation work, a total of 6,316 wild Ribes were destroyed on the 891 acres examined at a total cost of \$99.15.

Infection: First discovered on pine in Polk County in 1916 - since then it has been found on pine in scattered areas in the Counties of St. Croix, Polk, Barron, Dunn, Pepin, Pierce, Chippewa, Burnett, Douglas, Sawyer, and Clark in the west central part of the state, and in Oconto, Waupaca, and Shawano Counties in the east central portion. The infected pines in many of these areas have been destroyed in an effort to prevent the spread of the disease. Infection on Ribes has been found in all of the previously listed counties and in eight additional counties.

Future Work: Adoption of a definite control program, supported by adequate appropriations and carried out under the direction of a permanent state leader. Control activities should include: Adequate nursery sanitation to insure clean planting stock - protection of all pine plantations - eradication of all Ribes nigrum - complete initial eradication of Ribes to protect native stands, at least 128,290 acres (basis: pine acreage (Pure and mixed) plus additional 1/3 acreage for protection strips minus acreage cleared of Ribes) - reexamination of present control areas containing 32,037 acres not including 850 acres already reexamined - estimate all this acreage will need to be reworked because of abundance of Ribes found originally - complete Eau Galle experiment and prepare final report - extensive scouting to determine present status of disease - preparation of a detailed state map showing location of pine areas, infections, etc.

MINNESOTA

Policy: An effort was made during 1917 to 1919 to eradicate blister rust from the state by the destruction of Ribes and diseased pine in the known infection areas. Late in 1919, the futility of entirely eradicating the disease was realized. From then until 1922, the limited amount of control work was confined to protection of pine areas by the local eradication of Ribes. Since 1923, the work has been restricted to cooperative scouting and studies of blister rust damage and Ribes regrowth by one or two men employed temporarily during the summer months. During 1929, a permanent state leader was appointed to take charge of all blister rust activities in the state, and a blister rust control law was enacted by the state legislature. A definite program and plan of work has been cooperatively developed and approved by the various agencies. Under the general plan of work, the state will aid pine owners by providing trained men to supervise the eradication of Ribes, but the cost of the actual eradication work will be paid by the owners.

Pine acreage: (Based on survey figures of 1928). Pure pine, 173,092 acres; mixed pine, 266,812 acres; pine restocking in types other than white pine, 170,524 acres; total, 610,428 acres. There is also a considerable acreage of mixed growth, which contains less than 20 percent of pine stocking. The natural pine range in Minnesota is north of a line drawn from southern Washington County to the southwestern corner of Kittson County in the extreme northwestern part of the state.

Cooperation: During 1921 and 1922, eleven individuals expended \$154.30 on control work. No control work was performed in state during period 1923-1929, inclusive. In 1930, thirty-five individual cooperators expended \$333.05 in eradicating Ribes, and similar expenditures by 24 individuals in 1931 amounted to \$502.46. In addition, during 1931, individuals expended \$110.00 for Ribes compensation and \$178.95 on a pre-eradication survey.

Ribes eradication: During 1918 to 1922, inclusive, 4,981 acres were cleared of 407,278 wild Ribes at a cost of \$14,180.17, or \$2.85 per acre - Ribes averaged 81.8 bushes per acre. Only 118 cultivated bushes have been eradicated. No Ribes eradication work was performed in the state from 1923 to 1929, inclusive. During 1930 and 1931, a total of 2208 acres were cleared of 222,641 wild Ribes and 419 cultivated bushes at a cost of \$1,931.83.

Public forests: The National Forests in Minnesota during 1925 comprised 1,047,941 acres, while state forests had an acreage of 350,000 acres. Considerable white pine, mostly of merchantable size, is known to exist on the National forests. No protection work has been done on these public forests. However, Ribes eradication work was conducted

in the Interstate Park during the period 1918 to 1920, and 210 acres were initially examined on State Parks during 1931.

Plantations: According to the Forestry Almanac, up to 1927, a total of 375,000 trees had been planted on farm forests and as demonstration projects, no records available as to how many of these trees were white pines.

Nursery sanitation: The planting stock in the state and commercial nurseries is yearly inspected by state officials. No information is available regarding these inspections or sanitation measures prior to 1930. An examination of the environs of two commercial nurseries, in 1930, resulted in 120 acres being cleared of 31,861 Ribes at a cost of \$170.14. During 1931, initial control work was performed around four nurseries. A total of 101,852 wild Ribes and 403 cultivated bushes were removed from 225 acres at a cost of \$585.13.

Ribes nigrum: No action has been taken regarding the eradication of this species - the new state policy is to eradicate Ribes nigrum within one mile of valuable white pine. A special survey of black currant conditions was made during 1929 in Duluth and Two Harbors. This work in Duluth resulted in the locating of 233 patches containing 1,272 black currants; while in Two Harbors, 39 plantings were found to have 160 Ribes nigrum. In the former town, 62 per cent of the Ribes were diseased; but in the latter, only one percent were infected.

Blister rust investigations: 21 permanent pine infection plots established, by state men, in older infection areas to study development of disease. An examination of 2,211 pines in these plots during 1927 showed 9.3 per cent were infected. Also, 21 Ribes regrowth plots - summary of conditions in these plots given in state annual report for 1927. Control measures by local eradication of Ribes in 1918 and 1919 were effective in controlling pine infections. The Ribes regrowth, however, was such as to warrant reprotection five years after the original work. Wild Ribes are widely distributed wherever pine occurs. Ribes cynosbati is most prevalent and very susceptible to the rust. Considerable scouting for pine and infection has been performed by Lindgren; this work is also reported in 1927 annual report. During 1927 and 1928, Hirt completed a survey of forest types in the state, as a basis for the epidemiology study. In 1928, the Ribes return plots and the pine infection plots were rechecked. These plots were reexamined in 1929. A summary of conditions is given in the Minnesota Annual Report for 1929.

Infection: Blister rust was first found in Minnesota during 1916 on pine in a nursery near St. Croix. Later in that year, Ribes infection was located in three areas near Taylors Falls, and another pine infection was found forty miles south of Taylors Falls. Nine new infections were located in 1917, five in 1918, and four in 1919. Since then, blister rust has been slowly but steadily spreading north and

west. However, the few importations of infected stock, the early control work, and scattered distribution of the pine, have retarded the rate of spread. At the present time, blister rust is known to be present in 18 counties; occurring on nursery stock in different places in the southern part of the state almost to the Iowa line. On native pine and Ribes, the most southern infections are found in Washington County. The rust occurs in every county along the Wisconsin line from Washington north to Lake County. The western limit is Morrison County; and the northern, St. Louis County (at Tower). Pine infection in natural pine stands has been found in 12 counties as far north as Two Harbors in Lake County, west to Crow Wing County, and south to Washington County.

During 1928, infection scouting was conducted in the principal white pine stands in 14 counties in the northern part of the state. As a result, new infections were found on Ribes in 6 towns in 6 counties, and on pine in the town of Duluth, St. Louis County. In this town, 65 new pine infections and 222 black currant infections were located. The number of new Ribes infections in the other five counties varied from 1 to 18, the maximum number being in the town of Two Rivers in Lake County. An extensive scouting project was conducted by Gray and Ritter during 1929. The survey extended northward from Hastings to International Falls, westward to Red Lake and Bemidji, and eastward to the state boundary. A record was kept of the amount of white pine reproduction and Ribes growth. As a result of this scout work, pine infection was found in 18 new locations in four towns. In addition, 229 infected Ribes nigrum were located in Duluth, and Ribes cynosbati were found diseased in five towns.

Future work: Application of adequate nursery sanitation measures to insure clean planting stock - outlawing of Ribes nigrum and complete eradication of these bushes, especially in natural pine range - continuation of scouting to determine status of rust - conduct follow-up survey to inspect and map pine areas as determined by cartographical survey - application of control measures, especially in stands of young pine growth and reprotction of early control areas, 4,981 acres - continuation of studies on pine infection and Ribes regrowth - informational activities conducted in cooperation with forestry officials and Extension Service.

SPECIAL SUMMARIES OF CONTROL ACTIVITIES
IN NEW ENGLAND AND NEW YORK DURING PERIOD 1922-1931, INCLUSIVE

SUMMARY BY STATES OF INFORMATIONAL ACTIVITIES PERFORMED BY PERMANENT AND TEMPORARY
BLISTER RUST CONTROL AGENTS IN NEW ENGLAND AND NEW YORK DURING PERIOD 1923-1931.

INCLUSIVE

General

State	Maine	N.H.	Vt.	Mass.	R. I.	Conn.	N. Y.	Total
Meetings addressed	392	1,613	367	393	108	47	899	3,819
Attendance	23,604	100,675	17,612	26,405	8,429	1,940	75,383	254,048
Field Dem meetings	867	716	371	440	20	31	260	2,705
Attendance	4,977	7,911	4,444	3,091	1,196	693	4,325	26,637
Displays placed	902	1,668	509	641	78	115	441	4,354
Publications distributed	60,999	165,856	26,138	132,600	29,081	6,655	119,262	540,591
Mimeo. articles distributed	2,671	57,445	168	1,789	2,250	91	3,574	67,988
Items published	551	3,309	380	1,917	267	631	1,900	8,955
Posters and signs placed	18,444	19,362	6,838	3,063	2,104	469	7,786	58,066
Roadside dem. placed	93	18	10	60	2	19	6	208

In addition, during the period July 1-December 31, 1922, the following general informational work was performed: 251 meetings addressed with an attendance of 29,163 persons, 335 field demonstration meetings attended by 1,732 individuals, 374 displays placed, 35,067 publications distributed, 313 items published, and 2,500 posters and signs placed.

Personal

Initial interviews	26,114	23,840	8,014	26,816	2,096	3,076	18,195	108,151
Follow-up calls	8,625	19,726	5,663	9,830	1,236	2,533	13,799	61,412
Persons instructed in field	19,301	15,112	7,041	10,369	485	1,533	13,390	67,231

During the period July 1 to December 31, 1922, an additional 6,227 initial interviews and 1,924 follow-up calls were made, and 1,540 individuals received personal instruction in the field.

SUMMARY BY STATES OF INFORMATIONAL ACTIVITIES PERFORMED BY TEMPORARY BLISTER
RUST CONTROL AGENTS IN NEW ENGLAND AND NEW YORK DURING PERIOD 1923-1931,
INCLUSIVE

State	General							
	Maine	N. H.	Vt.	Mass.	R. I.	Conn.	N. Y.	Totals
Meetings addressed	13	6	4	9	-	-	-	32
Attendance	705	228	170	579	-	-	-	1,682
Field dem. meetings	654	6	2	3	-	2	-	667
Attendance	3,907	56	32	15	-	44	-	4,054
Displays placed	470	47	14	1	-	7	-	539
Publications distributed	19,152	600	1,375	460	-	1,514	32	23,133
Mimeo. articles distributed	46	-	-	-	-	66	-	112
Items published	13	11	5	5	-	2	1	37
Posters and signs placed	11,516	489	129	10	-	108	3	12,255
Roadside dem. placed	52	-	7	-	-	19	-	78

Personal								
Initial interviews	15,226	427	375	365	-	898	19	17,310
Follow-up calls	3,819	4	322	83	-	708	40	4,976
Persons instructed in field	14,218	238	213	17	-	401	-	15,087

SUMMARY OF YEARLY INFORMATIONAL ACTIVITIES PERFORMED BY PERMANENT AND TEMPORARY
BLISTER RUST CONTROL AGENTS IN NEW ENGLAND AND NEW YORK DURING PERIOD 1923-1931, INCLUSIVE

General

Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	Totals
Meetings addressed	722	707	627	490	467	363	204	144	95	3,819
Attendance	32,649	47,071	45,522	33,082	34,690	21,178	23,729	8,275	7,852	254,048
Field dem. meetings	834	792	418	210	148	159	70	44	30	2,705
Attendance	5,442	4,050	2,912	5,018	2,646	2,809	1,898	1,022	840	26,637
Displays placed	582	647	680	624	647	492	358	215	109	4,354
Publications dist.	51,308	55,696	68,818	76,697	88,840	62,708	52,332	48,124	36,068	540,591
Mimeo. articles dist.	-	-	-	-	-	14,953	23,155	20,715	9,165	67,988
Items published	1,203	1,269	1,294	1,202	1,219	1,109	769	518	372	8,955
Posters & signs placed	6,499	9,553	8,894	8,056	7,041	7,268	4,388	3,445	2,922	58,066
Roadside dem. placed	-	-	-	-	-	-	-	127	81	208

In addition, during the period July 1 to December 31, 1922, the following general informational work was performed: 251 meetings addressed with an attendance of 29,163 persons, 335 field demonstration meetings attended by 1,732 individuals, 374 displays placed, 35,067 publications distributed, 313 items published and 2,500 posters and signs placed.

Initial interviews	14,724	15,984	13,819	12,153	13,120	15,644	9,013	7,905	5,789	108,151
Follow-up calls	5,555	6,804	7,380	7,309	8,228	8,625	6,503	5,568	5,440	61,412
Persons instructed in field	4,274	6,198	11,169	11,559	13,102	8,952	6,741	3,166	2,070	67,231

During the period July 1 to December 31, 1922, an additional 6,227 initial interviews and 1,924 follow-up calls were made, and 1,540 individuals received personal instruction in the field.

SUMMARY OF YEARLY INFORMATIONAL ACTIVITIES PERFORMED BY TEMPORARY BLISTER RUST CONTROL AGENTS IN NEW ENGLAND AND NEW YORK DURING PERIOD 1923-1931, INCLUSIVE

-130-

General

Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	Totals
Meetings addressed	4	13	4	3	-	1	2	1	4	32
Attendance	295	512	102	277	-	110	210	6	170	1,682
Field dem. meetings	194	159	190	77	13	16	9	5	4	667
Attendance	556	576	591	1,804	254	110	55	32	76	4,054
Displays placed	30	66	95	131	125	46	14	14	18	539
Publications dist.	2,725	3,138	1,876	2,407	2,300	2,103	3,352	2,544	2,688	23,133
Mimeo. articles dist.	-	-	-	-	-	-	-	46	66	112
Items published	6	13	3	1	1	1	3	1	8	37
Posters & signs placed	231	1,399	2,432	2,184	1,784	1,715	1,013	866	631	12,255
Roadside dem. placed	-	-	-	-	-	-	-	46	32	78

Personal

Initial interviews	2,047	2,569	2,201	1,939	1,994	1,574	2,064	1,742	1,180	17,310
Follow-up calls	391	677	584	506	266	391	533	703	925	4,976
Persons instructed in field	1,189	2,274	2,725	1,931	1,876	1,516	2,327	730	519	15,087

INFORMATIONAL ACTIVITIES PER PERMANENT BLISTER PUST CONTROL
AGENT IN NEW ENGLAND AND NEW YORK 1923-1931, INCLUSIVE
 (Weighted Average Number Per Year)

General

Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	Totals
Meetings addressed	20.2	20.4	17.5	14.3	14.5	11.9	7.6	5.2	3.4	
Attendance	913.9	1369.4	1279.4	962.0	1077.3	699.1	880.9	300.7	289.9	
Field dem. meetings	18.0	18.6	6.4	3.9	4.2	4.8	2.3	1.4	1.0	
Attendance	138.0	102.1	65.4	94.2	74.3	90.1	69.0	36.0	28.8	
Displays placed	15.6	17.1	16.5	14.5	16.3	14.6	12.9	7.3	3.4	
Publications dist.	1372.1	1545.8	1885.7	2178.6	2702.7	1948.3	1834.5	1657.4	1259.6	
Mimeo.articles dist.	-	-	-	-	-	472.5	867.2	751.6	343.4	
Items published	33.8	36.9	36.4	35.2	38.0	36.2	28.7	18.8	13.7	
Posters & signs placed	177.0	239.8	182.0	172.2	164.3	187.4	126.4	93.8	86.5	
Roadside dem. placed	-	-	-	-	-	-	-	2.9	1.8	

Personal

Initial interviews	358.0	394.7	327.3	299.5	347.7	306.9	260.3	224.1	173.9	
Follow-up calls	145.8	180.2	191.4	199.5	248.6	271.8	223.6	176.9	170.4	
Persons instructed in field	87.1	115.4	237.9	282.3	350.8	227.9	165.3	88.6	58.5	

SUMMARY OF YEARLY INFORMATIONAL ACTIVITIES PERFORMED BY PERMANENT AND TEMPORARY
BLISTER RUST CONTROL AGENTS IN MAINE DURING PERIOD 1923-1931, INCLUSIVE

General

Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	Totals
Meetings addressed	93	54	49	59	56	22	21	22	16	392
Attendance	4,212	2,229	2,361	2,025	2,942	2,404	3,451	2,615	1,365	23,604
Field dem. meetings	257	224	210	104	25	23	14	10	-	867
Attendance	772	724	705	2,004	394	191	103	84	-	4,977
Displays placed	101	103	148	172	229	79	36	18	16	902
Publications dist.	6,742	9,240	5,379	8,243	7,556	6,260	7,357	5,350	4,872	60,999
Mimeo. articles dist.	-	-	-	-	-	547	362	691	1,071	2,671
Items published	139	88	106	76	54	41	31	8	8	551
Posters & signs placed	511	2,350	3,022	3,428	2,664	2,482	1,807	1,308	872	18,444
Roadside dem. placed	-	-	-	-	-	-	-	72	21	93

Personal

Initial interviews	3,866	4,713	3,190	3,061	3,192	2,247	2,636	1,991	1,218	26,114
Follow-up calls	780	1,193	1,277	1,305	852	949	1,080	908	281	8,625
Persons instructed in field	1,664	3,047	2,965	2,982	2,886	1,984	2,642	885	246	19,301

SUMMARY OF YEARLY INFORMATIONAL ACTIVITIES PERFORMED BY PERMANENT AND TEMPORARY
BLISTER RUST CONTROL AGENTS IN NEW HAMPSHIRE DURING PERIOD 1923-1931, INCLUSIVE

General

Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	Totals
Meetings addressed	322	332	245	176	179	171	95	64	29	1,613
Attendance	14,069	17,979	16,762	10,222	11,808	9,761	13,613	2,835	3,621	100,675
Field dem. meetings	226	240	69	54	47	51	12	10	7	716
Attendance	2,485	1,949	635	714	836	952	155	94	91	7,911
Displays placed	245	305	308	205	203	144	115	97	46	1,668
Publications dist.	15,830	7,768	27,014	33,921	32,028	15,870	17,983	8,616	6,826	165,856
Mimeo. articles dist.	-	-	-	-	-	11,993	20,556	19,178	5,713	57,445
Items published	393	440	454	388	463	415	365	277	114	3,309
Posters & signs placed	2,578	4,204	3,333	2,749	2,300	2,036	957	724	481	19,362
Roadside dem. placed	-	-	-	-	-	-	-	8	10	18

Personal

Initial interviews	3,702	4,358	3,807	2,935	2,963	2,134	1,665	1,231	1,045	23,840
Follow-up calls	1,663	2,251	2,738	2,378	2,685	2,326	2,070	1,757	1,858	19,726
Persons instructed in field	1,157	935	3,173	2,996	2,481	1,729	1,422	755	464	15,112

SUMMARY OF YEARLY INFORMATIONAL ACTIVITIES PERFORMED BY PERMANENT AND TEMPORARY

BLISTER RUST CONTROL AGENTS IN VERMONT DURING PERIOD 1923-1931, INCLUSIVE

General

Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	Totals
Meetings addressed	42	62	74	33	49	65	21	14	7	367
Attendance	1,838	4,336	3,722	1,649	1,439	2,610	719	1,080	219	17,612
Field dem. meetings	135	60	23	21	54	55	18	1	4	371
Attendance	718	324	483	418	923	1,191	335	6	46	4,444
Displays placed	69	65	66	59	74	78	45	37	16	509
Publications dist.	3,038	1,962	2,317	2,789	3,395	4,765	2,742	3,290	1,840	26,138
Mimeo.articles dist.	-	-	-	-	-	150	12	4	2	168
Items published	83	55	44	29	41	53	18	39	18	380
Posters & signs placed	1,260	892	673	731	997	1,450	472	414	249	6,838
Roadside dem. placed	-	-	-	-	-	-	-	6	4	10

Personal

Initial interviews	735	648	1,101	960	1,093	1,055	793	1,075	554	8,014
Follow-up calls	609	404	384	530	870	1,204	702	626	334	5,663
Persons instructed in field	413	441	1,187	998	1,426	1,266	609	402	299	7,041

SUMMARY OF YEARLY INFORMATIONAL ACTIVITIES PERFORMED BY PERMANENT AND TEMPORARY
BLISTER RUST CONTROL AGENTS IN MASSACHUSETTS DURING PERIOD 1923-1931, INCLUSIVE

General

Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	Totals
Meetings addressed	87	59	61	68	39	36	34	7	2	393
Attendance	6,089	4,642	5,357	4,147	1,858	2,069	1,743	373	127	26,405
Field dem. meetings	70	214	78	10	16	16	18	16	2	440
Attendance	316	770	393	754	178	240	219	151	70	3,091
Displays placed	52	64	63	98	79	127	121	22	15	641
Publications dist.	12,032	11,469	15,099	15,242	24,255	18,133	11,750	14,534	10,086	132,600
Mimeo. articles dist.	-	-	-	-	-	1,052	386	100	251	1,789
Items published	203	250	299	260	247	317	201	77	63	1,917
Posters & signs placed	83	416	555	467	698	470	259	69	46	3,063
Roadside dem. placed	-	-	-	-	-	-	-	36	24	60

Personal

Initial interviews	4,678	4,483	3,761	2,800	2,993	3,652	2,061	1,505	883	26,816
Follow-up calls	1,556	1,831	1,026	1,221	1,550	1,206	673	469	298	9,830
Persons instructed in field	583	1,399	1,790	1,572	2,246	1,156	748	388	387	10,369

SUMMARY OF YEARLY INFORMATIONAL ACTIVITIES PERFORMED BY BLISTER RUST CONTROL AGENT

IN RHODE ISLAND DURING PERIOD 1923-1931, INCLUSIVE

General

Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	Totals
Meetings addressed	6	14	7	15	5	10	16	13	22	108
Attendance	280	1,195	475	2,220	580	609	1,100	520	1,450	8,429
Field dem. meetings	-	7	-	2	-	4	4	1	2	20
Attendance	-	51	-	75	-	38	68	500	464	1,196
Displays placed	7	13	20	13	5	7	4	2	7	78
Publications dist.	715	527	1,200	2,245	2,659	4,380	3,830	6,875	6,650	29,081
Mimeo.articles dist.	-	-	-	-	-	150	920	655	525	2,250
Items published	24	62	12	33	12	39	19	22	44	267
Posters & signs placed	115	565	228	50	20	415	167	433	111	2,104
Roadside dem. placed	-	-	-	-	-	-	-	-	2	2

Personal

Initial interviews	156	219	263	227	575	140	130	128	258	2,096
Follow-up calls	89	84	76	93	21	111	152	220	390	1,236
Persons instructed in field	30	38	73	15	180	11	27	70	41	485

SUMMARY OF YEARLY INFORMATIONAL ACTIVITIES PERFORMED BY PERMANENT AND TEMPORARY

BLISTER RUST CONTROL AGENTS IN CONNECTICUT DURING PERIOD 1923-1931, INCLUSIVE

General

Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	Totals
Meetings addressed	15	4	1	9	10	3	4	1	-	47
Attendance	367	96	25	543	645	62	181	21	-	1,940
Field dem. meetings	13	7	1	2	1	3	-	2	2	31
Attendance	330	17	5	254	7	24	-	12	44	693
Displays placed	15	9	12	10	19	21	17	11	1	115
Publications dist.	1,291	1,215	528	326	849	321	1,017	513	595	6,655
Mimeo. articles dist.	-	-	-	-	-	25	-	-	66	91
Items published	66	64	58	139	156	92	29	25	2	631
Posters & signs placed	57	11	39	21	122	56	37	24	102	469
Roadside dem. placed	-	-	-	-	-	-	-	-	19	19

Personal

Initial interviews	437	430	218	237	253	125	225	681	470	3,076
Follow-up calls	192	198	90	164	341	375	317	181	675	2,533
Persons instructed in field	50	73	99	191	248	176	306	205	185	1,533

SUMMARY OF YEARLY INFORMATIONAL ACTIVITIES PERFORMED BY PERMANENT AND TEMPORARY
BLISTER RUST CONTROL AGENTS IN NEW YORK DURING PERIOD 1923-1931, INCLUSIVE

General

Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	Totals
Meetings addressed	157	182	190	130	129	56	13	23	19	899
Attendance	5,794	16,594	16,820	12,276	15,418	3,663	2,917	831	1,070	75,383
Field dem. meetings	133	40	37	17	5	7	4	4	13	260
Attendance	821	215	691	799	308	173	1,018	175	125	4,325
Displays placed	93	88	63	67	38	36	20	28	8	441
Publications dist.	11,660	23,515	17,281	13,931	18,098	12,979	7,653	8,946	5,199	119,262
Mimeo. articles dist.	-	-	-	-	-	1,036	919	87	1,532	3,574
Items published	295	310	321	277	246	152	106	70	123	1,900
Posters & signs placed	1,895	1,115	1,044	610	240	659	689	473	1,061	7,786
Roadside dem. placed	-	-	-	-	-	-	-	5	1	6

Personal

Initial interviews	1,150	1,133	1,479	1,933	2,051	6,291	1,503	1,294	1,361	18,195
Follow-up calls	666	843	1,789	1,618	1,909	2,454	1,509	1,407	1,604	13,799
Persons instructed in field	277	265	1,882	2,805	3,635	2,630	987	461	448	13,390

TOWN AND INDIVIDUAL COOPERATION IN RIBES ERADICATION WORK IN
NEW ENGLAND AND NEW YORK DURING THE PERIOD 1922-1931, INCLUSIVE

(By Years)

Year	Town Cooperation		Individual Cooperation		
	No. Towns Cooperating	Amount Expended	No. Individuals Cooperating Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.	Amount Spent By Individuals
1922	59	\$16,898.68	-	971	\$28,035.13
1923	121	40,150.59	698	1,968	40,969.47
1924	151	48,898.50	1,714	3,050	44,622.07
1925	132	40,351.31	958	3,069	39,720.06
1926	123	41,223.95	741	3,283	44,172.88
1927	125	38,299.74	894	3,537	49,040.81
1928	145	39,038.73	991	3,390	54,667.68
1929	156	41,323.28	1,016	3,353	50,449.29
1930	186	46,880.12	971	2,422	34,035.50
1931	175	47,455.36	753	1,099	21,167.57
Totals	1,373	\$400,520.26	8,736	26,142	\$406,880.46

(By States)

State	Town Cooperation		Individual Cooperation		
	No. Towns Cooperating	Amount Expended	No. Individuals Cooperating Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.	Amount Spent By Individuals
Maine	452	\$76,141.17	621	10,396	\$78,640.80
N. H.	888	313,275.99	-	521	38,583.58
Vt.	11	548.21	172	1,820	62,733.95
Mass.	-	-	7,654	8,211	71,473.03
R. I.	-	-	34	2	31.36
Conn.	22	10,554.89	195	274	7,586.04
N. Y.	-	-	60	4,918	147,831.70
Totals	1,373	\$400,520.26	8,736	26,142	\$406,880.46

In addition to the above expenditures, individuals in Vermont spent \$82.00 for cultivated Ribes compensation in 1926. During 1930, individuals in Connecticut expended \$76.25 for such compensation. The total expenditures by individuals in Massachusetts includes funds used on special black currant eradication projects.

**SUMMARY OF TOTAL RIBES ERADICATION WORK IN NEW ENGLAND AND
NEW YORK DURING PERIOD 1922-1931, INCLUSIVE**

(By Years)

Year	Acreage Eradicated	Ribes Pulled		Cost to					Per Acre	
		Wild	Cult.	Individuals	Towns	States	Govt.	Total	Cost	Ribes
1922	476,621	4,849,812	16,061	28,035.13	16,898.68	48,683.66	3,200.90	96,818.37	.20	10.7
1923	892,639	7,969,917	55,074	40,969.47	40,150.59	76,951.28	2,812.53	160,883.87	.18	9.0
1924	1,008,042	9,466,271	73,858	44,622.07	48,898.50	71,682.56	3,972.39	169,175.52	.167	9.4
1925	834,428	7,296,670	59,458	39,720.06	40,351.31	56,251.26	2,169.23	138,491.86	.166	8.7
1926	814,439	8,838,000	51,471	44,172.88	41,223.95	60,292.28	2,693.80	148,382.91	.182	10.8
1927	894,501	8,032,574	48,738	49,040.81	38,299.74	62,552.15	3,409.71	153,302.41	.171	8.9
1928	879,812	6,677,961	58,223	54,667.68	39,038.73	60,988.80	3,311.52	158,006.73	.180	7.6
1929	919,755	7,262,127	74,654	50,449.29	41,323.28	76,827.92	2,694.11	171,294.60	.186	7.9
1930	722,561	7,452,394	30,924	33,340.00	46,880.12	68,235.06	3,605.42	152,060.60	.210	10.3
1931	580,036	6,252,129	22,416	20,444.82	47,455.36	80,696.74	2,528.73	151,125.65	.261	10.8
Totals	8,022,834	74,097,855	490,877	405,462.21	400,520.26	663,161.71	30,398.34	1,499,542.52	.187	9.2

(By States)

States	Acreage Eradicated	Ribes Pulled		Cost to					Per Acre	
		Wild	Cult.	Individuals	Towns	States	Govt.	Total	Cost	Ribes
Maine	2,515,232	17,878,280	112,807	78,640.80	76,141.17	18,284.95	21,766.81	194,833.73	.077	7.1
N. H.	2,356,596	28,638,142	81,313	38,583.58	313,275.99	92,835.69	-	444,695.26	.189	12.2
Vt.	188,166	1,932,817	5,885	62,733.95	548.21	10,865.17	854.00	75,001.33	.399	10.3
Mass.	1,855,795	10,774,180	225,394	70,054.78	-	169,736.35	-	239,791.13	.129	5.8
R. I.	180,331	113,435	7,816	31.36	-	12,399.62	1,380.76	13,811.74	.077	0.6
Conn.	274,721	1,744,270	21,956	7,586.04	10,554.89	39,754.39	6,381.77	64,277.09	.234	6.3
N. Y.	651,993	13,016,731	35,706	147,831.70	-	319,285.54	15.00	467,132.24	.716	20.0
Totals	8,022,834	74,097,855	490,877	405,462.21	400,520.26	663,161.71	30,398.34	1,499,542.52	.187	9.2

No wild Ribes eradication work performed in Rhode Island
during 1929 to 1931, inclusive.

SUMMARY OF RIBES ERADICATION WORK IN COOPERATION WITH INDIVIDUALS
IN NEW ENGLAND AND NEW YORK DURING PERIOD 1922-1931, INCLUSIVE

(By Years)

Year	Acreage Cleared Of Ribes	Ribes Pulled		Cost					Per Acre	
		Wild	Cult.	Indiv.	Towns	State	Govt.	Total	Cost	Ribes
1922	93828	2886282	8251	\$28035.13	\$820.78	\$10769.74	-	\$39625.65	.422	30.8
1923	174875	3954508	31338	40969.47	6910.47	16356.29	-	64236.23	.367	22.6
1924	205084	4235627	37532	44622.07	8000.65	18263.02	-	70885.74	.345	20.6
1925	209831	3567024	44811	39720.06	7089.87	21301.74	16.67	68128.34	.325	17.0
1926	241686	5485072	36075	44172.88	6747.56	24909.27	264.90	76094.61	.315	22.7
1927	291611	4993488	34066	49011.06	8375.41	28552.54	-	85939.01	.295	17.0
1928	323218	4027921	37104	54667.68	8089.87	30180.65	315.88	93254.08	.289	12.5
1929	282152	4293474	40216	50374.79	7010.13	36164.24	100.00	93649.16	.332	15.2
1930	150958	3012150	18502	32327.69	6074.88	21146.20	536.00	60084.77	.403	19.8
1931	108364	1088051	4909	20235.53	10.50	18149.46	563.25	38958.74	.360	10.0
Totals	2081607	37543597	292804	404136.36	59130.12	225793.15	1796.70	690856.33	.332	18.0

(By States)

State	Acreage Cleared Of Ribes	Ribes Pulled		Cost					Per Acre	
		Wild	Cult.	Indiv.	Towns	State	Govt.	Total	Cost	Ribes
Maine	293087	15905205	105551	\$78280.35	\$58152.91	\$106.99	\$16.67	\$136556.92	.466	54.3
N. H.	141349	3248079	9150	38570.86	429.00	9903.81	-	48903.67	.346	23.0
Vt.	184073	1892771	5665	62733.95	548.21	8703.50	854.00	72839.66	.396	10.3
Mass.	941621	7454924	140292	70054.78	-	67032.76	-	137087.54	.146	7.9
R. I.	540	2175	1000	31.36	-	94.72	-	126.08	.23	4.0
Conn.	55986	310144	5495	6743.93	-	5960.39	911.03	13615.35	.243	5.5
N. Y.	464951	8730299	25651	147721.13	-	133990.98	15.00	281727.11	.606	18.8
Totals	2081607	37543597	292804	404136.36	59130.12	225793.15	1796.70	690856.33	.332	18.0

**SUMMARY OF RIBES ERADICATION WORK IN COOPERATION WITH TOWNS
IN NEW ENGLAND DURING THE PERIOD 1922-1931, INCLUSIVE**

(By Years)

Year	Acreage Cleared Of Ribes	Ribes Pulled		Cost					Per Acre	
		Wild	Cult.	Towns	State	Indiv.	Govt.	Total	Cost	Ribes
1922	156045	1218793	7551	\$16077.90	\$6064.96	-	-	\$22142.86	\$.142	7.8
1923	251821	3058288	20718	33240.12	14485.22	-	-	47725.34	.189	12.1
1924	325341	3991645	16071	40897.85	14878.27	-	-	55776.12	.169	12.2
1925	251569	2983216	6118	33075.04	8271.20	-	-	41346.24	.164	11.8
1926	208346	2896113	3086	34476.39	10583.68	-	-	45060.07	.216	13.4
1927	220576	2447492	2572	29924.73	11416.16	-	-	41340.49	.187	11.1
1928	218986	1972684	6013	30948.86	8043.37	-	-	38992.23	.178	9.1
1929	260266	2236875	14987	34313.15	9399.28	-	\$817.55	44529.98	.171	8.6
1930	241127	3027616	3799	40805.24	9604.30	-	659.17	51068.71	.212	12.6
1931	190704	4064908	8995	47444.86	16504.74	36.00	-	63985.60	.336	21.3
Totals	2325881	27897630	89910	341203.74	109251.18	36.00	1476.72	451967.64	.194	12.0

(By States)

State	Acreage Cleared Of Ribes	Ribes Pulled		Cost					Per Acre	
		Wild	Cult	Towns	State	Indiv.	Govt.	Total	Cost	Ribes
Maine	29621	1667724	6136	17801.86	\$4198.93	36.00	-	\$22036.79	\$.744	56.3
N. H.	2209938	25114656	71554	312846.99	80332.84	-	-	393179.83	.178	11.4
Conn.	86322	1115250	12220	10554.89	24719.41	-	1476.72	36751.02	.426	12.9
Totals	2325881	27897630	89910	341203.74	109251.18	36.00	1476.72	451967.64	.194	12.0

SUMMARY OF STATE SCOUT WORK ON INDIVIDUALS' LANDS
IN NEW ENGLAND DURING PERIOD 1922-1931, INCLUSIVE

(By Years)

Year	Acreage Cleared Of Ribes	Ribes Pulled		Cost				Per Acre	
		Wild	Cult.	State	Govt.	Indiv.	Total	Cost	Ribes
1922	218736	294023	259	\$5178.51	\$3200.90	-	\$8379.41	\$.039	1.3
1923	457209	233169	2999	12032.26	2812.53	-	14844.79	.033	0.5
1924	460739	131233	20143	12076.07	3972.39	-	16048.46	.035	0.3
1925	366763	476012	8440	17217.42*	2152.56	-	19369.98*	.053	1.2
1926	346010	106194	11620	11257.44	2428.90	-	13686.34	.039	0.31
1927	368161	126354	8575	10368.86	3409.71	29.75	13808.32	.037	0.34
1928	318502	76756	10766	12319.26	2678.39	-	14997.65	.048	0.24
1929	338247	111510	14285	11506.99	1776.56	74.50	13358.05	.040	0.4
1930	279070	137006	6602	11487.10	2285.25	26.50	13798.85	.049	0.5
1931	220211	189126	5326	14263.38	1453.06	50.00	15776.44	.072	0.9
Totals	3373648	1881383	89015	117707.29	26170.25	180.75	144058.29	.043	0.6

*Includes 186.40 expended by town in Maine

(By States)

State	Acreage Cleared Of Ribes	Ribes Pulled		Cost				Per Acre	
		Wild	Cult.	State	Govt.	Indiv.	Total	Cost	Ribes
Maine	2192178	186322	954	13913.37*	21750.14	-	\$35663.51	\$.016	0.08
Mass	842089	1162744	76226	73404.63	-	-	73404.63	.087	1.4
R. I.	179010	105034	6746	12180.90	1380.76	-	13561.66	.076	0.6
Conn.	93986	298069	3272	7002.10	3039.35	180.75	10222.20	.109	3.2
N. Y.	66385	129214	1817	11206.29	-	-	11206.29	.169	1.9
Totals	3373648	1881383	89015	117707.29	26170.25	180.75	144058.29	.043	0.6

SUMMARY OF RIBES ERADICATION WORK ON PUBLIC LANDS IN NEW
ENGLAND AND NEW YORK DURING PERIOD 1922-1931,
INCLUSIVE

(By Years)

Year	Acreage Cleared Of Ribes	Ribes Pulled		COST			Per Acre	
		Wild	Cult.	States	Govt.	Total	Cost	Ribes
1922	8012	450714	-	\$26670.45	-	\$26670.45	\$3.33	56.3
1923	8734	723952	19	34077.51	-	34077.51	3.90	82.9
1924	15878	1107766	112	26465.20	-	26465.20	1.66	69.8
1925	6165	270418	89	9647.30	-	9647.30	1.56	40.6
1926	18397	350621	690	13541.89	-	13541.89	.736	19.1
1927	14098	463853	3381	12197.66	-	12197.66	.865	32.9
1928	19091	600388	4340	10436.52	317.25	10753.77	.563	31.4
1929	39020	606354	5166	19729.48	-	19729.48	.506	15.5
1930	26900	1117290	1196	21429.54	125.00	21554.54	.801	41.5
1931	31911	888313	2045	27190.04	-	27190.00	.852	27.8
Totals	188206	6579669	17038	201385.59	442.25	201827.84	1.07	35.0

(By States)

State	Acreage Cleared Of Ribes	Ribes Pulled		Cost			Per Acre	
		Wild	Cult.	States	Govt.	Total	Cost	Ribes
Maine	-	-	-	-	-	-	-	-
N. H.	5184	273532	609	2585.78	-	2585.78	.499	52.8
Vt.	4043	39956	220	2069.16	-	2069.16	.512	9.9
Mass.	70726	2156211	8747	28230.74	-	28230.74	.399	30.5
R. I.	781	6226	70	124.00	-	124.00	.159	8.0
Conn.	5772	12631	71	682.14	442.25	1124.39	.195	2.2
N. Y.	101700	4091113	7321	167693.77	-	167693.77	1.65	40.2
Totals	188206	6579669	17038	201385.59	442.25	201827.84	1.07	35.0

In addition to the above, 140 acres were cleared of 15,513 wild and 144 cultivated Ribes at a cost of \$53.86 in the application of regulatory measures in Maine during 1927, 1928, and 1929.

SUMMARY OF SPECIAL NURSERY SANITATION PROJECTS IN
NEW ENGLAND AND NEW YORK - 1930-1931.

(By Years)

Year	Acreage Cleared Of Ribes	Ribes Pulled		Cost				Per Acre	
		Wild	Cult.	Indiv.	States	Govt.	Total	Cost	Ribes
1930	24,506	158,332	825	\$985.81	4,567.92	-	\$5,553.73	.227	6.5
1931	28,846	21,731	1,141	123.29	4,589.12	512.42	5,224.83	.181	0.8
Totals	53,352	180,063	1,966	1,109.10	9,157.04	512.42	10,778.56	.202	3.4

(By States)

States	Acreage Cleared Of Ribes	Ribes Pulled		Cost				Per Acre	
		Wild	Cult.	Indiv.	States	Govt.	Total	Cost	Ribes
Maine	206	103,516	22	\$324.45	198.20	-	522.65	2.54	502.5
N. H.	125	1,875	-	12.72	13.26	-	25.98	.208	15.0
Vt.	50	90	-	-	92.51	-	92.51	1.85	1.8
Mass.	1,359	301	129	-	1,068.22	-	1,068.22	.786	0.2
R. I.	-	-	-	-	-	-	-	-	-
Conn.	32,655	8,176	898	661.36	1,390.35	512.42	2,564.13	.078	0.3
N. Y.	18,957	66,105	917	110.57	6,394.50	-	6,505.07	.343	3.5
Totals	53,352	180,063	1,966	1,109.10	9,157.04	512.42	10,778.56	.202	3.4

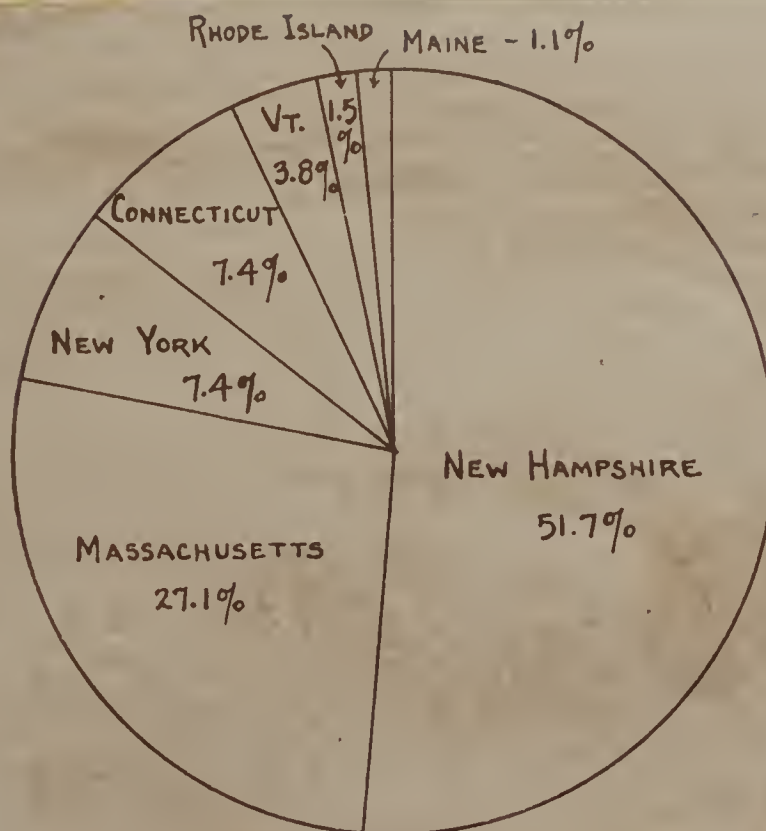
Prior to 1930, nursery sanitation work was included under "Individual Cooperation" or "State Work on Public Lands".

SUMMARY, BY STATES, OF ACREAGE REERADICATED OF RIBES IN NEW ENGLAND AND NEW YORK DURING PERIOD 1923-1931, INCLUSIVE

State	1923	1924	1925	1926	1927	1928	1929	1930	1931	Totals
Maine	20	1,240	644	728	1,010	708	232	810	2,165	7,557
N. H.	630	6,668	41,734	32,046	74,034	83,201	96,425	7,166	21,405	363,309
Vt.	1,240	974	1,396	5,850	2,315	2,292	3,005	5,877	3,535	26,484
Mass.	16,943	1,311	4,256	6,145	14,942	15,875	16,336	28,258	86,876	190,942
R. I.	3,240	5,000	0	2,670	0	0	0	0	0	10,910
Conn.	0	0	2,370	570	8,836	1,124	6,203	13,419	19,531	52,053
N. Y.	0	0	0	0	0	10,395	9,291	17,369	14,825	51,880
Totals	22,073	15,193	50,400	48,009	101,137	113,595	131,492	72,899	148,337	703,135

No record of any reprotection work prior to 1923. Detailed figures as to Ribes and costs are not available, except for 1926-1931, inclusive, and Ribes and cost figures are lacking for the 1926 reprotection work in Massachusetts. A summary for 1931 is given in this report on pages 51 to 55.

Percentage of Total Reprotected Acreage in New England and New York Performed in Each State During Period 1923-1931, Inclusive



SUMMARY OF NURSERY SANITATION WORK NOT INCLUDED
IN REGULAR ERADICATION SUMMARIES

State	Year	Ribes Pulled			Cost
		Wild	Cult.	Total	
Mass.	1925	-	527	527	\$253.31
Mass.	1926	-	29	29	114.58
Mass.	1927	2,902	1,007	3,909	2,213.41
Mass.	1928	2,040	2,338	4,378	3,340.67
Mass.	1929	720	1,235	1,955	2,756.79
Sub-total for Mass.	-	5,662	5,136	10,798	\$8,678.76
Conn.	1927	-	1,072	1,072	662.74
Grand Total	-	5,662	6,208	11,870	\$9,341.50

SUMMARY OF RIBES ERADICATION PERFORMED ON GOVERNMENT OWNED
LANDS IN EASTERN STATES DURING PERIOD 1924-1931 INCLUSIVE
(Initial and ReProtection Work)

Project	Years Work Performed	Acreage Eradicated of Ribes	No. Ribes Pulled		Total Cost	Per Acre	
			Wild	Cult.		Cost	Ribes
Allegheny National Forest	1929 and 1931	922*	36,349	8	\$411.69	.447	39.4
White Mountain National Forest	1924-1931 Incl.	6,779	182,493	-	2,721.94	.402	26.9
Monongahela National Forest	1929-1931 Incl.	1,300**	4,888	77	164.63	.127	3.8
Shenandoah National Forest	1929-1931 Incl.	4,787***	13,586	2	453.89	.095	2.8
Totals for National Forests	-	13,788	237,316	87	3,752.15	.272	17.2
Acadia National Park	1929-1931 Incl.	5,810	389,695	-	8,839.33	1.52	67.1
Totals - All Projects	-	19,598	627,011	87	12,591.48	.642	32.0

*Includes 416 acres reProtection work

**Includes 766 acres reProtection work

***Includes 414 acres reProtection work

None of these data are included in the eradication summaries in this report, except 395 acres cleared of 39,937 wild Ribes on the White Mountain National Forest in New Hampshire during 1931 at a cost of \$360.56 to the Government and \$90.14 to the State.

SUMMARY OF STATE COMPENSATION PAID YEARLY FOR CULTIVATED RIBES
DESTROYED IN NEW ENGLAND AND NEW YORK DURING THE PERIOD 1922-1931, INCLUSIVE

(By Years)

Year	Total Number Cultivated Ribes Removed	Number Bushes For Which Compensation Was Actually Paid	Number Persons Receiving Compensation	Amount Paid in Reimbursement
1922	16,061	727	50	\$289.49
1923	55,074	1,490	59	574.37
1924	73,858	6,106	84	1,572.11
1925	59,985	1,310	46	506.91
1926	51,500	4,187*	33*	1,531.60*
1927	50,817	4,544	143	1,731.96
1928	69,825	3,262	182	1,287.54
1929	86,868	4,079	454	1,790.01
1930	52,540	1,489**	76**	647.30**
1931	48,531	966	61	447.25
Totals	565,059	28,160	1,188	\$10,378.54

(By States)

State	Total Number Cultivated Ribes Removed	Number Bushes For Which Compensation Was Actually Paid	Number Persons Receiving Compensation	Amount Paid in Reimbursement
Maine	112,807	0	0	0
N. H.	81,313	570	23	\$129.47
Vt.	5,885	1,522	121	738.66
Mass.	254,436	21,898	356	7,818.10
R. I.	22,838	94	7	35.85
Conn.	34,542	175	16	103.50
N. Y.	53,238	3,901	665	1,552.96
Totals	565,059	28,160	1,188	\$10,378.54

*Includes \$82.00 compensation paid by individual cooperators in Vermont to 9 owners of cultivated Ribes for the removal of 164 bushes.

**Includes \$76.25 compensation paid by individual cooperators in Connecticut to 12 owners of cultivated Ribes for the removal of 114 bushes.

In Massachusetts, during 1931, a total of 21 persons claimed \$214.25 for the destruction of 500 bushes. Fifteen of these claims were paid during 1931 involving a reimbursement of \$196.70 for 434 Ribes destroyed. The remaining claims will be settled in the spring of 1932. The Massachusetts data in the above summaries include total claims for 1931.

The total number of cultivated Ribes destroyed during the years 1925-1929, inclusive, include such bushes pulled in connection with special nursery sanitation and black currant eradication projects, (listed on pages 147 and 148 of this report) which are not included in the regular eradication summaries.

SUMMARIES OF TOWN AND INDIVIDUAL COOPERATION
IN NEW ENGLAND AND NEW YORK DURING PERIOD 1917-1931, INCLUSIVE

Note: In the following tables, the amounts listed for individual cooperation do not agree with those given in the preceding Ribes eradication summaries, due to the fact that the control tables include only individual funds expended in eradicating Ribes, while the following summaries represent all expenditures by individuals. A single exception occurs in the following New York summary, which does not include \$3,664.20 spent by individuals in 1922 on unsupervised Ribes eradication work.

**SUMMARY OF TOWN AND INDIVIDUAL COOPERATION
IN NEW ENGLAND AND NEW YORK DURING PERIOD 1917-1931**

Year	No. Individual Cooperators		Amount Spent by Individual Cooperators	No. Towns Appropriating	Amount Appropriated	Amount Expended
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.				
1917	-	5	\$42.86	-	-	-
1918	-	17	6,309.93	43	\$7,200.00	\$5,029.11
1919	-	50	11,287.60	38	6,310.00	7,907.31
1920	-	152	8,272.73	51	8,675.00	7,992.31
1921	-	142	12,506.04	34	5,550.00	5,827.62
1922	-	971	24,370.93*	59	20,598.29	16,898.68
1923	698	1,968	40,969.47	121	39,530.00	40,150.59
1924	1,714	3,050	44,622.07	151	48,429.25	48,898.50
1925	958	3,069	39,720.06	132	40,989.90	40,351.31
1926	741	3,283	44,254.88**	123	40,425.00	41,223.95
1927	894	3,537	49,040.81	125	38,133.40	38,299.74
1928	991	3,390	54,667.68	145	41,126.60	39,038.73
1929	1,016	3,353	50,449.29	156	41,385.23	41,323.28
1930	971	2,422	34,111.75***	186	48,143.50	46,880.12
1931	753	1,099	21,167.57****	175	48,399.00	47,455.36
Totals	8,736	26,508	\$441,793.67	1,539	\$434,895.17	\$427,276.61

*Does not include \$3,664.20 expended by individuals in New York on unsupervised Ribes eradication work.

**Includes \$82.00 spent by individuals in Vermont for cultivated Ribes compensation.

***Includes \$76.25 spent by individuals (nurserymen) in Connecticut for cultivated Ribes compensation and \$695.50 expended by 834 individual cooperators in connection with special black currant eradication project in Massachusetts.

****Includes \$722.75 expended by 631 individual cooperators in connection with special black currant eradication project in Massachusetts.

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN
BLISTER RUST CONTROL WORK IN MAINE 1917-1931

Year	No. Individual Cooperators		Amount Spent by Individual Cooperators	No. Towns Appropriating	Amount Appropriated	Amount Expended
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.				
1917-1920	-	-	-	-	-	-
1921	-	30	\$1,163.07	-	-	-
1922	-	464	4,409.32	8	\$1,300.00	\$402.26
1923	58	1,090	8,760.34	39	7,115.00	6,899.99
1924	94	1,607	10,619.58	49	8,154.25	7,915.55
1925	47	1,548	9,337.30	51	8,000.00	7,179.63
1926	168	1,317	9,612.67	40*	6,725.00*	7,318.89
1927	138	1,234	9,324.06	43	8,277.00	8,319.01
1928	40	1,050	9,567.09	61	10,717.00	10,009.07
1929	35	1,111	8,261.32	55	9,485.27	9,429.83
1930	41	945	7,052.69	56	9,852.00**	9,723.81
1931	-	30	1,696.43	50	8,949.00***	8,943.13
Totals	621	10,426	\$79,803.87	452	\$78,574.52	\$76,141.17

*In five additional towns (not appropriating in 1926) \$548.77 was available for control work from balances of 1925 appropriations. Also, in four towns appropriating in 1926, \$47.51 was available from 1925 funds.

**Includes \$752.00 subscribed by V.I.A. in one town.

***Includes \$500.00 subscribed by V.I.A. in one town.

**SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN
BLISTER RUST CONTROL WORK IN NEW HAMPSHIRE 1917-1931**

Year	No. Individual Cooperators		Amount Spent by Individual Cooperators	No. Town Appropriations	Amount Appropriated	Amount Expended
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.				
1917	-	5	\$ 42.86	-	-	-
1918	-	9	987.43	43	\$7,200.00	\$5,029.11
1919	-	29	1,380.69	38	6,310.00	7,907.31
1920	-	81	3,386.96	50	8,175.00	7,492.31
1921	-	23	2,342.48	31	4,350.00	4,627.62
1922	-	148	8,004.82	49	16,800.00	14,020.27
1923	-	121	7,635.45	81	31,915.00	32,752.61
1924	-	46	2,582.27	96	38,975.00	39,697.93
1925	-	30	2,090.76	78	32,725.00	33,075.04
1926	-	19	2,734.86	81	33,375.00	33,531.46
1927	-	45	3,722.34	77	28,800.00	28,924.33
1928	-	37	4,534.14	80	28,700.00	27,390.19
1929	-	30	2,814.79	95	29,300.00	29,506.99
1930	-	18	2,125.50	127	37,950.00	36,875.44
1931	-	27	2,338.65	124	37,450.00	37,501.73
Totals	-	668	\$46,724.00	1,050	\$342,025.00	\$338,332.34

STATE OF NEW YORK
OFFICE OF THE COMPTROLLER

Date	Particulars	Debit	Credit	Balance	Total
1890					
Jan 1	Balance forward				
Jan 15	Jan 15				
Jan 31	Jan 31				
Feb 1	Feb 1				
Feb 15	Feb 15				
Feb 28	Feb 28				
Mar 1	Mar 1				
Mar 15	Mar 15				
Mar 31	Mar 31				
Apr 1	Apr 1				
Apr 15	Apr 15				
Apr 30	Apr 30				
May 1	May 1				
May 15	May 15				
May 31	May 31				
Jun 1	Jun 1				
Jun 15	Jun 15				
Jun 30	Jun 30				
Jul 1	Jul 1				
Jul 15	Jul 15				
Jul 31	Jul 31				
Aug 1	Aug 1				
Aug 15	Aug 15				
Aug 31	Aug 31				
Sep 1	Sep 1				
Sep 15	Sep 15				
Sep 30	Sep 30				
Oct 1	Oct 1				
Oct 15	Oct 15				
Oct 31	Oct 31				
Nov 1	Nov 1				
Nov 15	Nov 15				
Nov 30	Nov 30				
Dec 1	Dec 1				
Dec 15	Dec 15				
Dec 31	Dec 31				

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN
BLISTER RUST CONTROL WORK IN VERMONT
1917 - 1931

Year	No. Individual Cooperators		Amount Spent by Individual Cooperators	No. Towns Appropriating	Amount Appropriated	Amount Expended
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.				
1917-1918	-	-	-	-	-	-
1919	-	1	\$ 270.00	-	-	-
1920	-	29	515.61	-	-	-
1921	-	31	3,235.50	-	-	-
1922	-	125	5,502.22	-	-	-
1923	3	220	7,247.34	-	-	-
1924	27	246	7,392.74	1	\$100.00	\$85.10
1925	38	258	8,137.50	3	264.90	96.64
1926	53	162	7,923.94*	1	75.00	123.60
1927	15	118	7,106.05	3	56.40	56.40
1928	-	222	5,829.97	1	109.60	109.60
1929	4	126	5,791.94	1	100.00	27.00
1930	32	189	4,598.08	1	100.00	39.37
1931	-	154	3,286.17	-	-	10.50
Totals	172	1,881	66,837.06	11	\$805.90	\$548.21

*Includes \$82.00 expended by individuals for cultivated Ribes compensation.

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN
BLISTER RUST CONTROL WORK IN MASSACHUSETTS
1917 - 1931

Year	No. Individual Cooperators		Amount Spent by Individual Cooperators	No. Towns Appropriating	Amount Appropriated	Amount Expended
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.				
1917-1918	-	-	-	-	-	-
1919	-	15	\$1,575.00	-	-	-
1920	-	31	1,877.22	1	\$500.00	\$500.00
1921	-	35	2,434.00	3	1,200.00	1,200.00
1922	-	194	3,222.67	-	-	-
1923	586	470	6,894.90	-	-	-
1924	1,564	980	11,527.04	-	-	-
1925	873	890	5,554.15	-	-	-
1926	507	1,335	8,302.76	-	-	-
1927	678	1,379	8,459.42	-	-	-
1928	951	1,081	9,443.65	-	-	-
1929	844	965	10,183.69	-	-	-
1930	898	656	5,130.50*	-	-	-
1931	753	261	2,754.25**	-	-	-
Totals	7,654	8,292	\$77,359.25	4	\$1,700.00	\$1,700.00

*Includes \$695.50 expended by 834 individuals in connection with special black currant eradication project.

**Includes \$722.75 expended by 631 individuals in connection with special black currant eradication project.

SUMMARY OF INDIVIDUAL COOPERATION IN BLISTER
RUST CONTROL WORK IN RHODE ISLAND
1917 - 1931

Year	No. Individual Cooperators		Amount spent by Individual Cooperators
	Cult. Ribes Erad. only	Wild & Cult. Ribes erad.	
1917	-	-	-
1918	-	6	\$550.00
1919	-	-	-
1920	-	-	-
1921	-	-	-
1922	-	-	-
1923	34	1	15.36
1924	-	1	16.00
1925	-	-	-
1926	-	-	-
1927	-	-	-
1928	-	-	-
1929	-	-	-
1930	-	-	-
1931	-	-	-
Totals	34	8	\$581.36

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN
BLISTER RUST CONTROL WORK IN CONNECTICUT
1917 - 1931

Year	No. Individual Cooperators		Amount Spent by Individual Cooperators	No. Towns Appropriating	Amount Appropriated	Amount Expended
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.				
1917-1921	-	-	-	-	-	-
1922	-	2	\$ 12.00	2	\$2,498.29 (1)	\$2,476.15
1923	17	9	867.45	1	500.00	497.99
1924	29	9	63.15	5	1,200.00 (2)	1,199.92
1925	-	23	80.00	-	-	-
1926	13	80	1,411.80	1	250.00	250.00
1927	3	47	1,470.39	2	1,000.00 (3)	1,000.00
1928	-	34	1,950.64	3	1,600.00	1,529.87
1929	133	16	326.75	5	2,499.96 (4)	2,359.46
1930	-	41	1,333.11 (7)	2	241.50 (5)	241.50
1931	-	13	147.00	1	2,000.00 (6)	1,000.00
Totals	195	274	\$7,662.29	22	\$11,789.75	\$10,554.89

(1) Includes \$748.29 subscribed by individuals.

(2) " \$1,076.36 " " "

(3) " \$500.00 " " "

(4) " \$1,424.83 " " "

(5) " \$41.50 " " "

(6) " \$500.00 " " "

(7) Includes \$76.25 expended by individuals (nurserymen) for cultivated Ribes compensation.

SUMMARY OF INDIVIDUAL COOPERATION IN
BLISTER RUST CONTROL WORK IN NEW YORK
1917 - 1931

Year	No. Individual Cooperators		Amount Spent By Individual Cooperators
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.	
1917	-	-	-
1918	-	2	\$4,772.50
1919	-	5	8,061.91
1920	-	11	2,492.94
1921	-	23	3,330.99
1922	-	38	3,219.90*
1923	-	57	9,548.63
1924	-	161	12,421.29
1925	-	320	14,520.35
1926	-	370	14,268.85
1927	60	714	18,958.55
1928	-	966	23,342.19
1929	-	1,105	23,070.80
1930	-	573	13,871.87
1931	-	614	10,945.07
Totals	60	4,959	\$162,825.84

*Does not include \$3,664.20 spent by individuals on unsupervised Ribes eradication work.

SPECIAL TOTAL SUMMARIES OF RIBES ERADICATION
IN EASTERN STATES

SUMMARY OF RIBES ERADICATION WORK IN NEW ENGLAND
AND NEW YORK DURING PERIOD 1917 - 1931
(By Years)

Year	Acres Eradicated	Ribes Destroyed		Total Cost	Per Acre Values	
		Wild	Cult.		Ribes	Cost
1917	262,562	861,353*	69,514	\$65,481.24**	3.3	\$.371
1918	137,458	2,413,887	22,150	99,388.20***	18.8	.72
1919	252,043	4,549,948	27,877	137,117.05	18.2	.54
1920	270,657	4,243,983	25,936	84,843.80	15.8	.31
1921	376,745	3,191,967	15,755	68,093.70	8.5	.18
1922	476,621	4,849,812	16,061	96,818.37	10.7	.20
1923	892,639	7,969,917	55,074	160,883.87	9.0	.18
1924	1,008,042	9,466,271	73,858	169,175.52	9.4	.167
1925	834,428	7,296,670	59,458	138,491.86	8.7	.166
1926	814,439	8,838,000	51,471	148,382.91	10.8	.182
1927	894,501	8,032,574	48,738	153,302.41	8.9	.171
1928	879,812	6,677,961	58,223	158,006.73	7.6	.180
1929	919,755	7,262,127	74,654	171,294.60	7.9	.186
1930	722,561	7,452,394	30,924	152,060.60	9.1	.210
1931	580,036	6,252,129	22,416	151,125.65	10.8	.261
TOTALS	9,322,299	89,358,993	652,109	\$1,954,466.51	9.6	.212

*No Ribes figure for Connecticut in 1917.

**No cost figure for Massachusetts in 1917.

***No cost figure for Connecticut in 1918.

NOTE: Connecticut acreage for 1917 omitted in obtaining per acre
Ribes figure for 1917 and grand total.
Massachusetts acreage for 1917 omitted in obtaining per acre
cost figure for 1917 and grand total.
Connecticut acreage for 1918 omitted in obtaining per acre
cost figure for 1918 and grand total.

(Summary does not include special federal projects on National Forests
and Parks.)

SUMMARY OF RIBES ERADICATION WORK IN NEW ENGLAND AND NEW YORK 1918-1931, I L.

(INITIAL AND RE ERADICATION WORK)

STATE	Year 1918					Year 1919					Year 1920					Year 1921					Totals 1918-1921				
	No Ribes		Total		Per Acre	No Ribes		Total		Per Acre	No Ribes		Total		Per Acre	No Ribes		Total		Per Acre	No Ribes		Total		Per Acre
	Acres	Wild	Acres	Cult.		Acres	Wild	Acres	Cult.		Acres	Wild	Acres	Cult.		Acres	Wild	Acres	Cult.		Acres	Wild	Acres	Cult.	
MAINE	4810	94612	223	577828	1.0418	9216	333778	-	-	618.10	10283	176788	626	499405	466.1719	156221	56304	708	339876	2.16	180630	658729	1579	19708.14	1.0418
N.H.	66782	853215	8432	266188	39.447	163412	1659226	21171	3247835	20.415	204003	2061996	22204	3586448	175.1010	137827	165443	9773	2107307	1.59	571625	6335690	6157	16739.79	2.0411
VT.	4688	18567	77	511264	1.1048	2460	96749	-	-	222.24	4501	86294	74	139160	75.806	6819	6087	131	346401	5.04	17978	272143	882	14252.51	7.9915
MASS.	1826	256667	1818	168451	1.84903	10849	20182	2374	1156.18	75.166	19389	1224206	1421	1042207	54.6207	32933	632618	4631	1022904	3.10	81877	2411873	10345	44624.90	5.00285
R.I.	12715	19927	492	3527.97	28.129	40411	48320	1657	5602.34	14.112	23164	5773	1550	3784.92	16.26	26971	16022	552	3826.72	1.42	103261	81242	4285	1676.55	162.0.8
CONN.	100	10000	-	-	-	2500	21000	0	2322.34	1.931246	2170	42728	2	1974.70	91.1472	8000	41470	6	2664.07	33.518	13470	126263	8	692.11	546.9.3
N.Y.	28027	804153	11000	4267816	148.561	23194	218126	2435	79689.08	3.43940	7067	69583	47	2439.18	344.986	8474	780573	14	22576.33	2.668631	68062	4511045	13736	170393.76	250.66.3
TOTALS	137458	2412887	22450	9938820	72.18	252043	4629908	27877	137117.05	54.182	270657	4243983	25736	8248.80	31.150	376745	3191967	15785	68093.70	1.18	1036903	14399785	9718	389442.75	376.13.9

STATE	Year 1922					Year 1923					Year 1924					Year 1925					Year 1926				
	No Ribes		Total		Per Acre	No Ribes		Total		Per Acre	No Ribes		Total		Per Acre	No Ribes		Total		Per Acre	No Ribes		Total		Per Acre
	Acres	Wild	Acres	Cult.		Acres	Wild	Acres	Cult.		Acres	Wild	Acres	Cult.		Acres	Wild	Acres	Cult.		Acres	Wild	Acres	Cult.	
MAINE	10209	449287	8688	8012.48	0.422.3	326402	1209202	12007	10223.16	0.422.3	401227	1846957	11599	22092.91	0.675.0	274678	170015	15041	20257.62	0.736.2	304437	3106579	17562	21280.01	0.710.2
N.H.	179893	1818229	9061	28706.64	1.59100	260227	3496728	24779	51651.48	1.92123	326468	4027011	14999	52037.05	1.6512.4	261244	3244832	6492	44614.97	1.9012.4	209585	3107830	4289	45451.75	1.714.8
VT.	13512	201906	812	6150.24	0.55150	25190	278570	1224	8498.42	0.37110	25688	102154	592	9280.02	0.36171	26222	317837	610	9058.12	0.3411.9	22650	257743	1404	10223.44	0.5311.4
MASS.	64302	1578294	2368	13375.09	2.04245	201921	1776107	14987	28411.92	1.478	157776	2025026	20777	34772.98	2.1712.6	185201	751830	33610	21759.45	1.113.8	189230	1080039	2594	2722.131	1.445.7
R.I.	11500	11764	122	1840.00	1.60102	31308	14876	1464	1895.96	0.6045	52480	24771	2953	2302.01	0.445	25460	4994	1928	1519.04	0.090.1	22207	17625	203	1924.233	0.60.6
CONN.	6175	137581	0	4651.50	0.75222	14062	208238	248	6863.14	0.400205	17216	289034	2447	5981.73	0.3416.7	16106	272797	684	5495.30	0.3416.9	22257	182026	330	5062.35	0.227.8.2
N.Y.	11020	654231	0	34082.42	3.09580	15459	906617	267	42229.70	2.89753	25198	1061968	2501	40907.02	1.6242.1	34037	994805	1153	35787.36	1.0228.4	30073	1077340	2087	37129.76	1.7628.3
TOTALS	476621	4849812	16061	96818.37	2.010.7	892639	7469917	52074	160883.87	1.18	1000042	9466271	73858	169175.52	1.679.4	834420	7296670	59458	230491.86	1.668.7	814439	8830000	5471	142382.91	1.0210.8

STATE	Year 1927					Year 1928					Year 1929					Year 1930					Year 1931				
	No Ribes		Total		Per Acre	No Ribes		Total		Per Acre	No Ribes		Total		Per Acre	No Ribes		Total		Per Acre	No Ribes		Total		Per Acre
	Acres	Wild	Acres	Cult.		Acres	Wild	Acres	Cult.		Acres	Wild	Acres	Cult.		Acres	Wild	Acres	Cult.		Acres	Wild	Acres	Cult.	
MAINE	26148	1260189	10225	22573.71	0.864.9	203067	1595792	8778	22597.90	1.117.9	233543	2090340	18244	20958.98	1.090.9	195249	1984950	10573	19845.49	1.0210.2	114889	1283439	5002	16940.47	1.4711.2
N.H.	225793	2660816	2510	40970.11	1.8211.8	228530	2302588	5220	40844.96	1.7910.1	252144	2102999	6644	40609.40	1.618.3	225305	2844886	3197	48746.11	1.21612.6	179409	3024150	4222	50261.99	2.8016.9
VT.	19405	280781	314	8238.95	0.424.4	16767	159240	196	6881.37	0.491.5	13300	110671	453	6495.47	1.488.8	13172	94701	108	5996.22	1.4537.2	11860	49114	132	4149.07	1.350.4.1
MASS.	294228	903508	2783	25726.62	0.872.07	239023	521260	31815	26422.59	1.112.2	258415	841039	31646	29729.73	1.153.3	136988	1024641	8284	18457.15	1.357.5	116691	264246	6658	13848.23	1.119.2.3
R.I.	9735	22279	521	1700.86	0.752.2	21461	17777	615	2622.44	1.19803	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CONN.	20904	152025	1208	8623.20	0.403.73	75105	1233805	1364	8012.84	1.071.6	34597	134407	10922	8034.54	2.323.9	44586	471703	4738	5783.51	1.301.1	23714	115459	515	5757.98	2.431.4.4
N.Y.	62955	1410646	2207	45523.96	0.7322.4	95049	1957769	10235	50606.43	2.000.4	127756	1982671	6745	65466.48	1.51215.5	107265	1455503	4524	53232.12	1.49613.6	133473	1515721	5887	66167.91	1.45111.4
TOTALS	894501	8032574	48728	153302.41	1.718.9	879812	6677961	59223	158006.73	1.807.6	919755	7262127	74654	171294.60	1.867.9	722561	7452394	30924	152060.60	2.1010.3	580036	6252129	2246151	17565	26110.8

STATE	Totals 1922-1931					Grand Totals 1918-1931				
	No Ribes		Total		Per Acre	No Ribes		Total		Per Acre
	Acres	Wild	Acres	Cult.		Acres	Wild	Acres	Cult.	
MAINE	2515232	17878280	112807	194833.73	0.71	2695862	18537009	114386	214541.87	1.0806.9
N.H.	2356596	28638142	81313	444695.26	1.8912.2	2928221	34973832	142830	561435.05	1.9211.9
VT.	188166	1932817	5885	75001.33	3.9910.3	206144	2204960	6167	89253.84	4.3310.7
MASS.	1255795	10774180	225394	239191.13	1.795.8	1937672	13189053	235739	284466.03	1.4716.8
R.I.	180331	113435	7816	13811.74	0.710.6	283592	194677	12067	30573.29	1.080.7
CONN.	274721	1744270	21956	64277.09	2.3416.3	288191	1869533	21964	71239.20	2.4716.5
N.Y.	651993	13016731	35706	467132.24	1.1620.0	720055	17528576	49442	637475.99	1.88524.3
TOTALS	8022834	74097855	490877	1499547.52	1.874.2	9059737	88497640	582595	188985.27	2.084.8

Note:- This summary does not include any special black current eradication work or special nursery sanitation projects for which no acreage figures were available.

SUMMARY OF RIBES ERADICATION WORK IN LAKE STATES AND PENNSYLVANIA 1918-1931 INCL. (INITIAL AND REERADICATION WORK)

STATE	YEAR - 1918					YEAR - 1919					YEAR - 1920					YEAR - 1921					TOTALS 1918-1921						
	Acreage	No. Ribes		Total Cost	Per Acre Cost/Ribes	Acreage	No. Ribes		Total Cost	Per Acre Cost/Ribes	Acreage	No. Ribes		Total Cost	Per Acre Cost/Ribes	Acreage	No. Ribes		Total Cost	Per Acre Cost/Ribes	Acreage	No. Ribes		Total Cost	Per Acre Cost/Ribes		
		Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.			Wild	Cult.
MICHIGAN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
MINNESOTA	1200	90000	-	3000.00	25075.0	2440	156304	-	5596.66	22964.0	677	120297	118	5160.03	76277.7	589	39773	-	397.78	675	67.5	4906	406374	118	14154.47	2.89	82.8
PENNSYLVANIA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WISCONSIN	220	24000	-	500.00	22710.0	75	5844	-	138.59	18578.0	10995	775576	-	5708.24	51970.5	8807	457074	19	3620.84	405	51.4	20177	1262494	19	9967.67	4.41	62.6
TOTALS	1420	114000	-	3500.00	24680.3	2515	162148	-	5735.25	22864.5	11672	895873	118	10860.27	93176.7	9476	496047	19	4018.62	424	52.4	25083	1668868	137	24122.14	9.62	66.5

STATE	YEAR - 1922						YEAR - 1923						YEAR - 1926						YEAR - 1927				YEAR - 1928				
	Acreage		No. Ribes		Per Acre Cost/Ribes	Total Cost	Acreage		No. Ribes		Per Acre Cost/Ribes	Total Cost	Acreage		No. Ribes		Per Acre Cost/Ribes	Total Cost	Acreage	No. Ribes		Per Acre Cost/Ribes	Total Cost	Acreage	No. Ribes	Total Cost	Per Acre Cost/Ribes
	Wild	Cult.	Wild	Cult.			Wild	Cult.	Wild	Cult.			Wild	Cult.	Wild	Cult.				Wild	Cult.						
MICHIGAN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MINNESOTA	75	904	-	-	25.70	34212.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PENNSYLVANIA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WISCONSIN	4770	530,953	5	5	3007.94	4311.3	3347	204,043	-	2671.98	77861.0	208	51,878	-	700.00	336249.4	250	42,226	-	1112.24	44568.9	347	79,861	-	1045.85	3.01	230.1
TOTALS	4845	531,857	5	5	3033.64	62404.2	3347	204,043	-	2671.98	77861.0	208	51,878	-	700.00	336249.4	250	42,226	-	1112.24	44568.9	1047	162,649	263	1785.17	9.66	88.1

STATE	YEAR - 1929						YEAR - 1930						YEAR - 1931						TOTALS 1922 - 1931						GRAND TOTALS 1918-1931									
	Acreage	No. Ribes		Total Cost	Per Acre Cost/Ribes	Acreage	No. Ribes		Total Cost	Per Acre Cost/Ribes	Acreage	No. Ribes		Total Cost	Per Acre Cost/Ribes	Acreage	No. Ribes		Total Cost	Per Acre Cost/Ribes	Acreage	No. Ribes		Total Cost	Per Acre Cost/Ribes	Acreage	No. Ribes		Total Cost	Per Acre Cost/Ribes				
		Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.			Wild	Cult.	Wild	Cult.
MICHIGAN	2570	170,982	391	-	3607.63	14066.5	6578	373016	440	5161.94	78556.7	12,252	505,310	687	4359.52	35641.2	22,900	1,132,096	1781	13,868.41	606	49.4	22,900	1,132,096	1781	13,868.41	606	49.4						
MINNESOTA	-	-	-	-	-	-	1466	79,877	13	856.94	50454.5	742	142,764	406	1074.89	145192.4	2283	223,545	419	1957.53	857	97.9	7189	629,919	537	16,112.00	2.24	87.6						
PENNSYLVANIA	4998	306,650	553	-	3557.96	71261.3	12,631	664,016	863	9139.11	72352.6	25,718	865,533	703	11,303.78	44033.7	43,347	1,836,199	2119	24,000.85	554	42.4	43,347	1,836,199	2119	24,000.85	554	42.4						
WISCONSIN	180	18,744	-	-	771.05	428104.1	491	164,485	-	969.10	197335.0	3967	313,515	324	1999.03	50479.0	13,560	1,405,705	329	12,277.19	905	103.7	33,737	2,668,199	348	22,244,866.659	79.1							
TOTALS	7748	496,376	944	-	7936.64	10264.1	21,166	1,281,394	1316	16,127.09	76260.5	42,679	1,827,122	2120	18,737.22	43942.8	82,090	4,597,545	4648	52,103.98	635	56.0	107,173	6,266,413	4785	76,226.12	7.11	58.5						

NOTE:- THE WISCONSIN DATA FOR 1922 DO NOT INCLUDE WORK DONE ON EAU GALLE EXPERIMENTAL AREA WHERE 732 ACRES WERE CLEARED OF 24845 RIBES AT A COST OF \$511.78.

NO CONTROL WORK PERFORMED IN ANY OF THE STATES DURING 1924 AND 1925. THE SPECIAL BLACK CURRANT ERADICATION WORK PERFORMED IN MICHIGAN DURING 1929-1931, INCLUSIVE, IS ALSO EXCLUDED FROM THIS SUMMARY.

ACREAGE AND COMMERCIAL VALUE OF
WHITE PINE IN NORTHEASTERN AND LAKE STATES

COMMERCIAL VALUE OF WHITE PINE IN NEW ENGLAND AND NEW YORK

White Pine Types	Description of Types		Acreage	Value in \$	Basis for Estimating Value
1-Pure merchantable pine	Stocking at least 80 per cent white pine - trees over 6 inches D.B.H.		1,020,992	\$130,686,976	Average 16 M bd.ft. per acre, at normal value \$8.00 per M
2-Pure pine reproduction	At least 2/3 of the area stocked with trees and at least 80 per cent of the trees are white pine under 6 inches D.B.H.		1,693,190	42,329,750	\$25 per acre
3-Mixed type	Stocking 21-79 per cent white pine over 6 inches D.B.H.				
A-	Stocking: 21-29 per cent white pine		976,370	31,243,840	Average stocking 25% pine - Average 4 M bd. ft. per acre at normal value \$8.00 per M
B-	Stocking: 30-79 per cent white pine		1,815,463	116,189,632	Average stocking 50% pine - Average 8 M bd. ft. per acre at normal value \$8.00 per M
4-Other types than white pine restocking to white pine	White pine under 6 inches D.B.H.				
	Degree of White Pine Stocking	Light	1,244,639	2,489,278	Pine stocking at \$2 per acre
		Medium	462,239	1,848,956	Pine stocking at \$4 per acre
		Heavy	71,006	426,036	Pine stocking at \$6 per acre
5-White pine restocking in pure merchantable pine and mixed types	Degree of White Pine Stocking	Light	436,575*	873,150	Pine stocking at \$2 per acre
		Medium	696,394*	2,785,576	Pine stocking at \$4 per acre
		Heavy	217,842*	1,307,052	Pine stocking at \$6 per acre
Grand Totals			7,283,899	\$330,180,246	

*These acreages not included in grand total - already listed under pure and mixed types.

COMMERCIAL VALUE OF WHITE PINE IN MAINE

White Pine Types	Description of Types		Acreage	Value in \$	Basis for Estimating Value
1-Pure merchantable pine	Stocking at least 80 per cent white pine - trees over 6 inches D.B.H.		304,790	\$39,013,120	Average 16 M bd.ft. per acre, at normal value \$8.00 per M
2-Pure pine reproduction	At least 2/3 of the area stocked with trees and at least 80 per cent of the trees are white pine under 6 inches D.B.H.		284,490	7,112,250	\$25 per acre
3-Mixed type	Stocking 21-79 per cent white pine over 6 inches D.B.H.				
A-	Stocking: 21-29 per cent white pine		248,258	7,944,256	Average stocking 25% pine - Average 4 M bd. ft. per acre at normal value \$8.00 per M Average stocking 50% pine - Average 8 M bd. ft. per acre at normal value \$8.00 per M
B-	Stocking: 30-79 per cent white pine		794,915	50,874,560	
4-Other types restocking to white pine	White pine under 6 inches D.B.H.				
	Degree of White Pine Stocking	Light	787,491	1,574,982	Pine stocking at \$2 per acre
		Medium	136,346	545,384	Pine stocking at \$4 per acre
		Heavy	52,621	315,726	Pine stocking at \$6 per acre
5-Restocking in pure merchantable pine and mixed types	Degree of White Pine Stocking	Light	279,562*	559,124	Pine stocking at \$2 per acre
		Medium	281,530*	1,126,120	Pine stocking at \$4 per acre
		Heavy	166,177*	997,062	Pine stocking at \$6 per acre
Grand Totals			2,608,911	\$110,062,584	

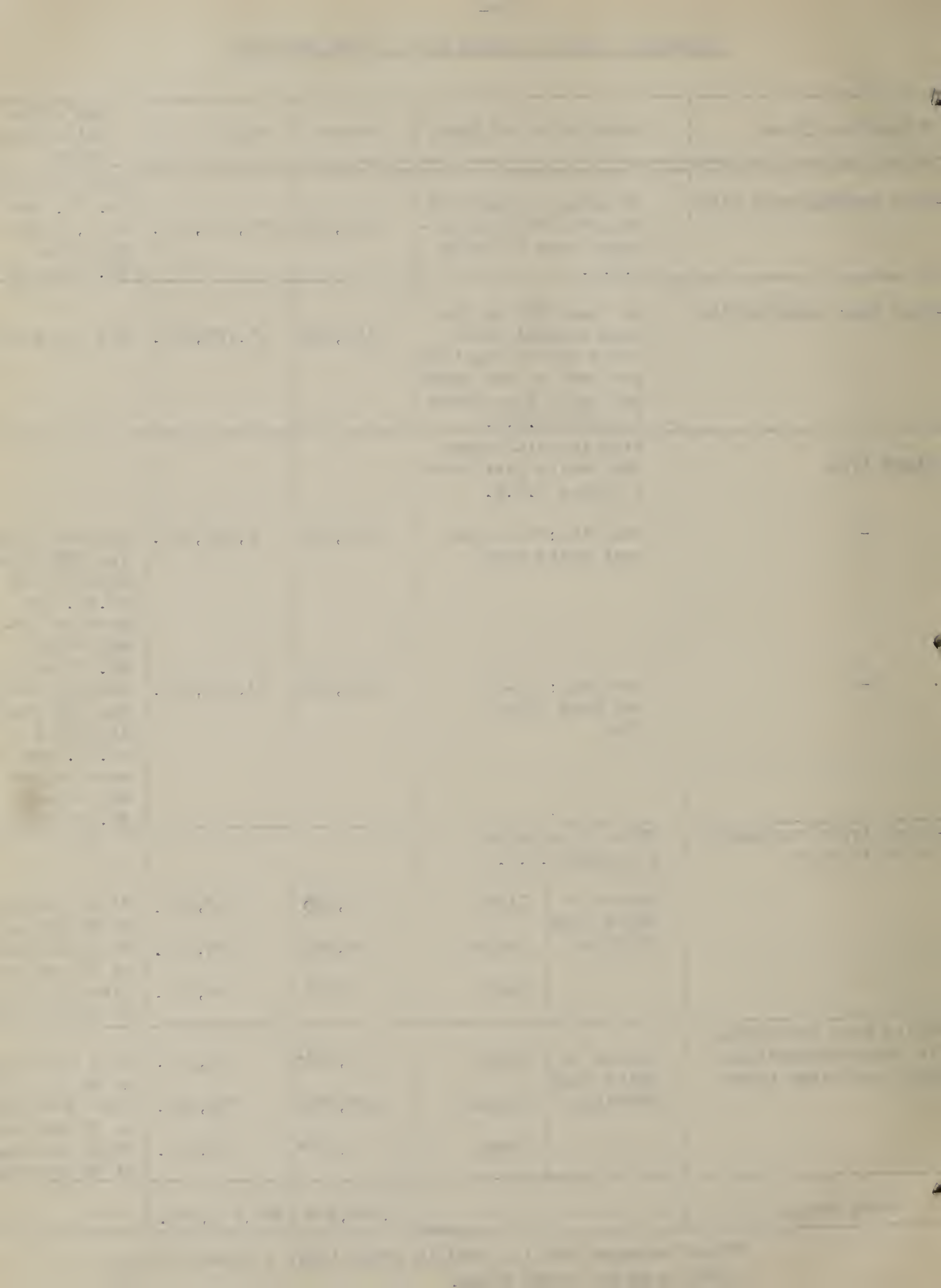
*These acreages not included in grand total - already listed under pure and mixed types.



COMMERCIAL VALUE OF WHITE PINE IN NEW HAMPSHIRE

White Pine Types	Description of Types		Acreage	Value in \$	Basis for Estimating Value
1-Pure merchantable pine	Stocking at least 80 per cent white pine - trees over 6 inches D.B.H.		263,526	\$33,731,328.	Average 16 M bd. ft. per acre, at normal value \$8.00 per M
2-Pure pine reproduction	At least 2/3 of the area stocked with trees and at least 80 per cent of the trees are white pine under 6 inches D.B.H.		548,225	13,705,625.	\$25 per acre
3-Mixed type	Stocking 21-79 per cent white pine over 6 inches D.B.H.				
A-	Stocking: 21-29 per cent white pine		296,439	9,486,048.	Average stocking 25% pine- Average 4 M bd.ft. per acre at normal value \$8.00 per M
B-	Stocking: 30-79 per cent white pine		278,366	17,815,424.	Average stocking 50% pine- Average 8 M bd.ft. per acre at normal value \$8.00 per M
4-Other types restocking to white pine	White pine under 6 inches D.B.H.				
	Degree of White pine Stocking	Light	63,685	127,370.	Pine stocking at \$2 per acre
		Medium	86,366	345,464.	Pine stocking at \$4 per acre
		Heavy	7,426	44,556.	Pine stocking at \$6 per acre
5-White pine restocking in pure merchantable pine and mixed types	Degree of White pine Stocking	Light	36,386*	72,772.	Pine stocking at \$2 per acre
		Medium	195,632*	782,528.	Pine stocking at \$4 per acre
		Heavy	7,063*	42,378.	Pine stocking at \$6 per acre
Grand Totals			1,544,033	\$76,153,493.	

*These acreages not included in grand total - already listed under pure and mixed types.



COMMERCIAL VALUE OF WHITE PINE IN VERMONT

White Pine Types	Description of Types		Acreage	Value in \$	Basis for Estimating Value
1-Pure merchantable pine	Stocking at least 80 per cent white pine - trees over 6 inches D.B.H.		29,923	\$3,830,144.	Average 16 M bd.ft. per acre, at normal value \$8.00 per M
2-Pure pine reproduction	At least 2/3 of the area stocked with trees and at least 80 per cent of the trees are white pine under 6 inches D.B.H.		73,453	1,836,325.	\$25 per acre
3-Mixed type	Stocking 21-79 per cent white pine over 6 inches D.B.H.				
A-	Stocking 21-29 per cent white pine		78,415	2,509,280.	Average stocking 25% pine- Average 4 M bd. ft. per acre at normal value \$8.00 per M
B-	Stocking 30-79 per cent white pine		160,147	10,249,408.	Average stocking 50% pine- Average 8 M bd. ft. per acre at normal value \$8.00 per M
4-Other types restocking to white pine	White pine under 6 inches D.B.H.				
	Degree of White pine Stocking	Light	158,499	316,998.	Pine stocking at \$2 per acre
		Medium	66,647	266,588.	Pine stocking at \$4 per acre
		Heavy	-	-	-
5-White pine restocking in pure merchantable pine and mixed types	Degree of White Pine Stocking	Light	23,340*	46,680.	Pine stocking at \$2 per acre
		Medium	47,595*	190,380.	Pine stocking at \$4 per acre
		Heavy	652*	3,912.	Pine stocking at \$6 per acre
Grand Totals			567,084*	\$19,249,715.	

*These acreages not included in grand total - already listed under pure and mixed types.

COMMERCIAL VALUE OF WHITE PINE IN MASSACHUSETTS

White Pine Types	Description of Types		Acreage	Value in \$	Basis for Estimating Value
1-Pure merchantable pine	Stocking at least 80 per cent white pine - trees over 6 inches D.B.H.		162,113	\$20,750,464.	Average 16 M ' bd.ft. per acre, at normal value \$8.00 per M
2-Pure pine reproduction	At least 2/3 of the area stocked with trees and at least 80 per cent of the trees are white pine under 6 inches D.B.H.		288,686	7,217,150.	\$25 per acre
3-Mixed type	A-	Stocking 21-29 per cent white pine	63,765	2,040,480.	Average stocking 25% pine- Average 4 M bd.ft.per acre at normal value \$8.00 per M Average stocking 50% pine- Average 8M bd. ft.per acre at normal value \$8.00 per M
	B-	Stocking 30-79 per cent white pine	273,266	17,489,024	
4-Other types restocking to white pine	White pine under 6 inches D.B.H.				
	Degree of White Pine Stocking	Light	61,752	123,504.	Pine stocking at \$2 per acre
		Medium	99,081	396,324.	Pine stocking at \$4 per acre
		Heavy	9,901	59,406.	Pine stocking at \$6 per acre
5-White pine restocking in pure merchantable pine and mixed types	Degree of White Pine Stocking	Light	43,682*	87,364.	Pine stocking at \$2 per acre
		Medium	89,554*	358,216.	Pine stocking at \$4 per acre
		Heavy	29,115*	174,690.	Pine stocking at \$6 per acre
Grand Totals			958,564	\$48,696,622.	

*These acreages not included in grand total - already listed under pure and mixed types.

COMMERCIAL VALUE OF WHITE PINE IN RHODE ISLAND

White Pine Types	Description of Types		Acreage	Value in \$	Basis for Estimating Value
1-Pure merchantable pine	Stocking at least 80 per cent white pine - trees over 6 inches D.B.H.		13,343	\$1,707,904.	Average 16 M bd.ft. per acre, at normal value \$8.00 per M
2-Pure pine reproduction	At least 2/3 of the area stocked with trees and at least 80 per cent of the trees are white pine under 6 inches D.B.H.		436	10,900.	\$25 per acre
3-Mixed type	Stocking 21-79 per cent white pine over 6 inches D.B.H.				
A-	Stocking 21-29 per cent white pine		-	-	
B-	Stocking 30-79 per cent white pine		-	-	
4-Other types restocking to white pine	White pine under 6 inches D.B.H.				
	Degree of White Pine Stocking	Light	38,016	76,032.	Pine stocking at \$2 per acre
		Medium	21,401	85,604.	Pine stocking at \$4 per acre
		Heavy	-	-	-
Grand Totals			73,196	\$1,880,440.	

(No restocking in pure merchantable pine and mixed types in Rhode Island according to survey)

COMMERCIAL VALUE OF WHITE PINE IN CONNECTICUT

White Pine Types	Description of Types		Acreage	Value in \$	Basis for Estimating Value
1-Pure merchantable pine	Stocking at least 80 per cent white pine-trees over 6 inches D.B.H.		32,697	\$4,185,216.	Average 16 M bd.ft. per acre, at normal value \$8.00 per M
2-Pure pine reproduction	At least 2/3 of the area stocked with trees and at least 80 per cent of the trees are white pine under 6 inches D.B.H.		40,729	1,018,225.	\$25 per acre
3-Mixed type	Stocking 21-79 per cent white pine over 6 inches D.B.H.				
A-	Stocking 21-29 per cent white pine		57,794	1,849,408.	Average stocking 25% pine - Average 4 M bd.ft. per acre at normal value \$8.00 per M
B-	Stocking 30-79 per cent white pine		66,551	4,259,264.	Average stocking 50% pine - Average 8 M bd.ft. per acre at normal value \$8.00 per M
4-Other types restocking to white pine	White pine under 6 inches D.B.H.				
	Degree of White Pine Stocking	Light	14,837	29,674.	Pine stocking at \$2 per acre
		Medium	3,546	14,184.	Pine stocking at \$4 per acre
		Heavy	-	-	-
5-White pine restocking in pure merchantable pine and mixed types	Degree of White Pine Stocking	Light	4,947*	9,894.	Pine stocking at \$2 per acre
		Medium	29,741*	118,964.	Pine stocking at \$4 per acre
		Heavy	-	-	-
Grand Totals			216,154	\$11,484,829.	

*These acreages not included in grand total - already listed under pure and mixed types.

COMMERCIAL VALUE OF WHITE PINE IN NEW YORK

White Pine Types	Description of Types		Acreage	Value in \$	Basis for Estimating Value
1-Pure merchantable pine	Stocking at least 80 per cent white pine - trees over 6 inches D.B.H.		214,600	\$27,468,800.	Average 16 M bd.ft. per acre, at normal value \$8.00 per M
2-Pure pine reproduction	At least 2/3 of the area stocked with trees and at least 80 per cent of the trees are white pine under 6 inches D.B.H.		457,171	11,429,275.	\$25 per acre
3-Mixed type	A-	Stocking 21-29 per cent white pine	231,699	7,414,368.	Average stocking 25% pine- Average 4 M bd.ft. per acre at normal value \$8.00 per M
	B-	Stocking 30-79 per cent white pine	242,218	15,501,952.	Average stocking 50% pine- Average 8M bd.ft. per acre at normal value \$8.00 per M
4-Other types restocking to white pine	White pine under 6 inches D.B.H.				
	Degree of White Pine Stocking	Light	120,359	240,718.	Pine stocking at \$2 per acre
		Medium	48,852	195,408.	Pine stocking at \$4 per acre
		Heavy	1,058	6,348.	Pine stocking at \$6 per acre
5-White pine restocking in pure merchantable pine and mixed types	Degree of White Pine Stocking	Light	48,658*	97,316.	Pine stocking at \$2 per acre
		Medium	52,342*	209,368.	Pine stocking at \$4 per acre
		Heavy	14,835*	89,010.	Pine stocking at \$6 per acre
Grand Total s			1,315,957	\$62,652,563.	

*These acreages not included in grand total - already listed under pure and mixed types.

COMMERCIAL VALUE OF WHITE PINE IN PENNSYLVANIA

White Pine Types	Description of Types		Acreage	Value in \$	Basis for Estimating Value
1-Pure merchantable pine	Stocking at least 80 per cent white pine - trees over 6 inches D.B.H.		51,854	\$6,637,312.	Average 16 M bd.ft. per acre, at normal value \$8.00 per M
2-Pure pine reproduction	At least 2/3 of the area stocked with trees and at least 80 per cent of the trees are white pine under 6 inches D.B.H.		40,043	1,021,075.	\$25 per acre
3-Mixed type	Stocking 21-79 per cent white pine over 6 inches D.B.H.				
	A-	Stocking 21-29 per cent white pine	98,023	3,136,736.	Average stocking 25% pine- Average 4 M bd.ft. per acre at normal value \$8.00 per M
	B-	Stocking 30-79 per cent white pine	28,078	1,956,992.	Average stocking 50% pine- Average 8 M bd.ft. per acre at normal value \$8.00 per M
4-Other types restocking to white pine	White pine under 6 inches D.B.H.				
	Degree of White Pine Stocking	Light	157,630	315,260.	Pine stocking at \$2 per acre
		Medium	-	-	-
		Heavy	-	-	-
5-White pine restocking in pure merchantable pine and mixed types	Degree of White Pine Stocking	Light	68,662*	137,324.	Pine stocking at \$2 per acre
		Medium	-	-	-
		Heavy	-	-	-
Grand Totals			375,628	\$13,204,699.	

*These acreages not included in grand total - already listed under pure and mixed types.

COMMERCIAL VALUE OF WHITE PINE IN MICHIGAN

White Pine Types	Description of Types		Acreage	Value in \$	Basis for Estimating Value
1-Pure merchantable pine	Stocking at least 80 per cent white pine - trees over 6 inches D.B.H.		15,444	\$1,976,832.	Average 16 M bd.ft. per acre, at normal value \$8.00 per M
2-Pure pine reproduction	At least 2/3 of the area stocked with trees and at least 80 per cent of the trees are white pine under 6 inches D.B.H.		12,877	321,925.	\$25 per acre
3-Mixed type	Stocking 21-79 per cent white pine over 6 inches D.B.H.		554,897	17,756,704.	Average stocking 25% pine- Average 4 M bd.ft. per acre at normal value \$8.00 per M
	A-	Stocking 21-29 per cent white pine			
	B-	Stocking 30-79 per cent white pine	130,892	8,377,088.	Average stocking 50% pine- Average 8 M bd.ft. per acre at normal value \$8.00 per M
4-Other types restocking to white pine	White pine under 6 inches D.B.H.		124,626	249,252.	Pine stocking at \$2 per acre Pine stocking at \$4 per acre
	Degree of White Pine Stocking	Light			
		Medium			
5-White pine restocking in pure merchantable pine and mixed types	Degree of White Pine Stocking	Heavy	-	-	-
		Light	52,718*	105,436.	Pine stocking at \$2 per acre
		Medium	20,044*	80,176.	Pine stocking at \$4 per acre
		Heavy	-	-	-
Grand Totals			839,259	\$28,869,505.	

*These acreages not included in grand total - already listed under pure and mixed types.

COMMERCIAL VALUE OF WHITE PINE IN MINNESOTA

White Pine Types	Description of Types		Acreage	Value in \$	Basis for Estimating Value
1-Pure merchantable pine	Stocking at least 80 per cent white pine - trees over 6 inches D.B.H.		169,232	\$21,661,696.	Average 16 M bd.ft. per acre, at normal value \$8.00 per M
2-Pure pine reproduction	At least 2/3 of the area stocked with trees and at least 80 per cent of the trees are white pine under 6 inches D.B.H.		3,860	96,500.	\$25 per acre
3-Mixed type	Stocking 21-79 per cent white pine over 6 inches D.B.H.				
A-	Stocking 21-29 per cent white pine		134,853	4,315,296.	Average stocking 25% pine - Average 4 M bd.ft. per acre at normal value \$8.00 per M
B-	Stocking 30-79 per cent white pine		131,959	8,445,376.	Average stocking 50% pine - Average 8 M bd.ft. per acre at normal value \$8.00 per M
4-Other types restocking to white pine	White pine under 6 inches D.B.H.				
	Degree of White Pine Stocking	Light	133,489	266,978	Pine stocking at \$2 per acre
		Medium	37,035	148,140.	Pine stocking at \$4 per acre
		Heavy	-	-	-
5-White pine restocking in pure merchantable pine and mixed types	Degree of White Pine Stocking	Light	42,735*	85,470.	Pine stocking at \$2 per acre
		Medium	5,954*	23,816.	Pine stocking at \$4 per acre
		Heavy	-	-	-
Grand Totals			610,428	\$35,043,272.	

*These acreages not included in grand total - already listed under pure and mixed types.

COMMERCIAL VALUE OF WHITE PINE IN WISCONSIN

White Pine Types	Description of Types		Acreage	Value in \$	Basis for Estimating Value
1-Pure merchantable pine	Stocking at least 80 per cent white pine - trees over 6 inches D.B.H.		6,342	\$811,776.	Average 16 M bd.ft. per acre, at normal value \$8.00 per M
2-Pure pine reproduction	At least 2/3 of the area stocked with trees and at least 80 per cent of the trees are white pine under 6 inches D.B.H.		4,785	119,625.	\$25 per acre
3-Mixed type	Stocking 21-79 per cent white pine over 6 inches D.B.H.				
	A-	Stocking 21-29 per cent white pine	74,560	2,385,920.	Average stocking 25% pine - Average 4 M bd.ft. per acre at normal value \$8.00 per M
	B-	Stocking 30-79 per cent white pine	35,196	2,252,544.	Average stocking 50% pine - Average 8 M bd.ft. per acre at normal value \$8.00 per M
4-Other types restocking to white pine	White pine under 6 inches D.B.H.				
	Degree of White Pine Stocking	Light	0	-	-
		Medium	0	-	-
		Heavy	0	-	-
5-White pine restocking in pure merchantable pine and mixed types	Degree of White Pine Stocking	Light	0	-	-
		Medium	0	-	-
		Heavy	0	-	-
Grand Totals			120,883	\$5,569,865.	

